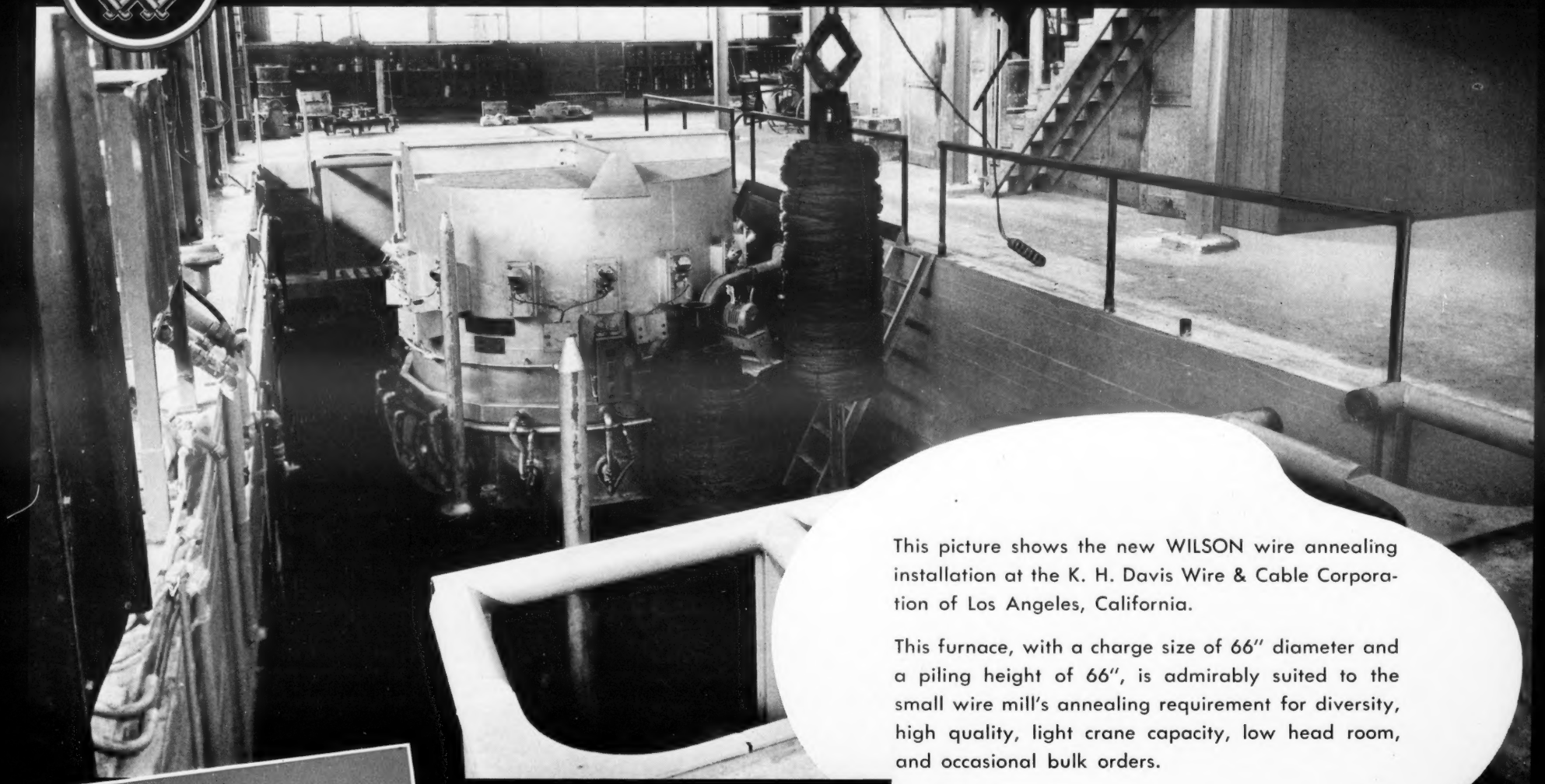
WIRE AND WIRE PRODUCTS

December, 1951

MORGAN
CONSTRUCTION
COMPANY
WORCESTER, MASS.

OFFICIAL PUBLICATION OF THE WIRE ASSOCIATION

WILSON WIRE ANNEALING *Furnaces*



This picture shows the new WILSON wire annealing installation at the K. H. Davis Wire & Cable Corporation of Los Angeles, California.

This furnace, with a charge size of 66" diameter and a piling height of 66", is admirably suited to the small wire mill's annealing requirement for diversity, high quality, light crane capacity, low head room, and occasional bulk orders.

Lee Wilson **ENGINEERING** *Co., Inc.*

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with the following excellent results: increased production; increased efficiency; better quality nails; lower machine maintenance; lower production costs; less work for operators. Average life of Firthaloy dies—800 to 1600 hours per grind. Total life of Firthaloy dies—8,000 to 16,000 hours.

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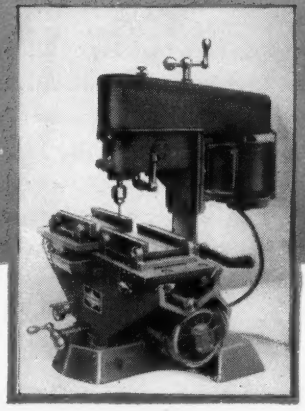

Finishing Firthaloy Nail Gripper Dies should be done on a Firth-Sterling Nail Barbing machine illustrated herewith.

Call or Write

R-242

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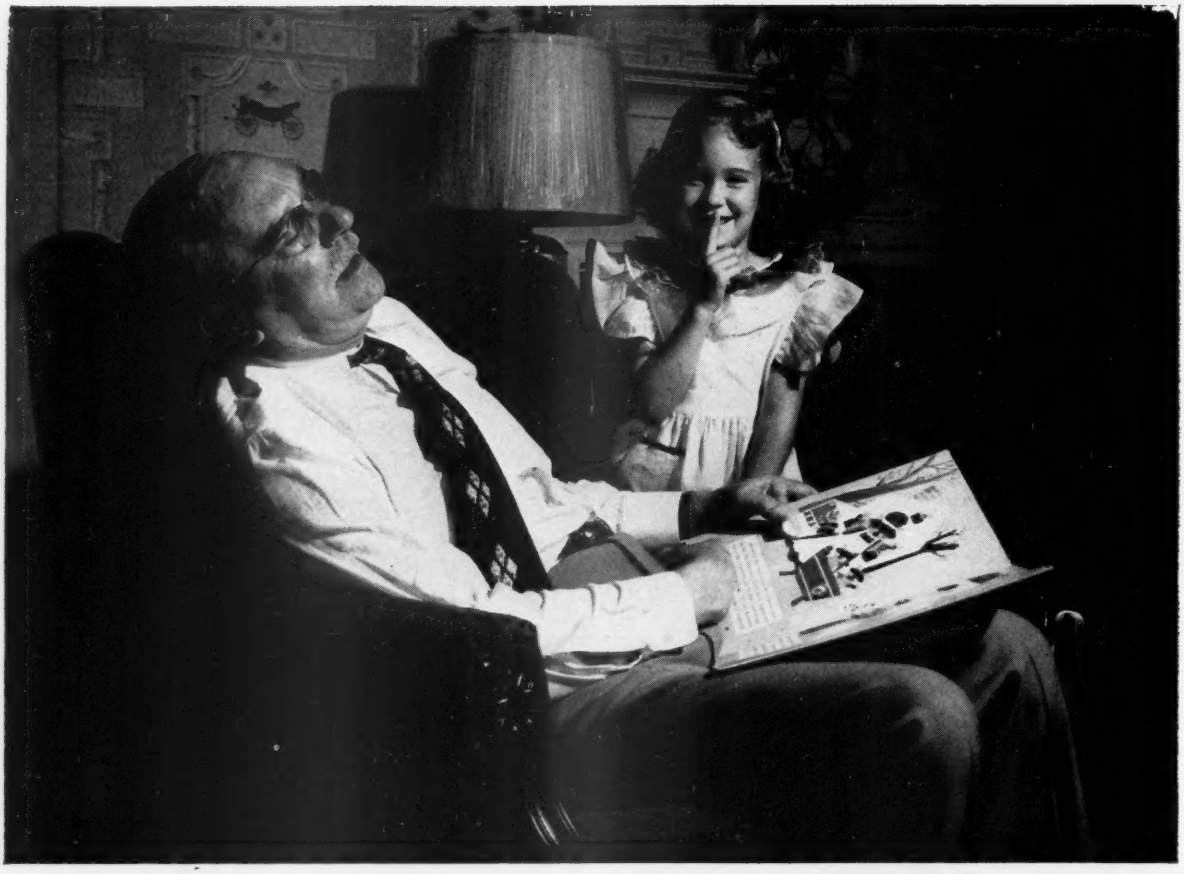

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Only special-analysis, high-carbon steel goes into the making of Silver Star Spring Wire. Engineered solely for coiled upholstery springs, Silver Star is one of the many specialties developed and produced in Bethlehem's modern wire mills.

Bethlehem is continually improving steel wire to meet new requirements and applications. If you have any kind of wire problem — selection, processing, uses — our engineers will be glad to give you prompt assistance. Get in touch with our nearest sales office.

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WRAPS COILS OR STRAIGHT LENGTHS

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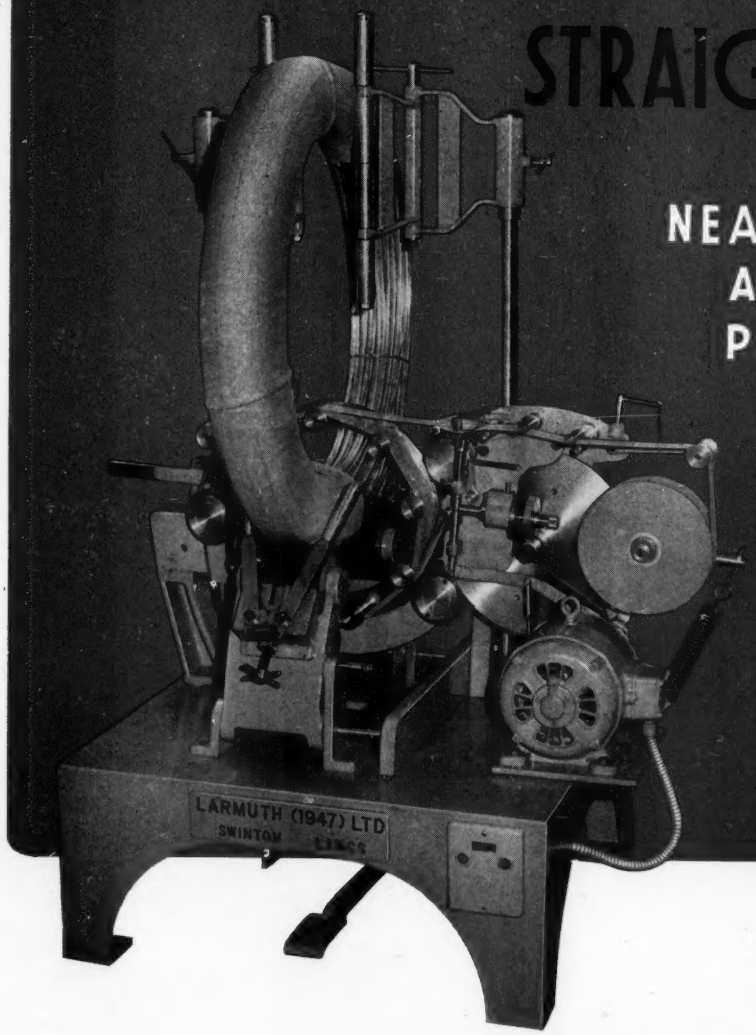
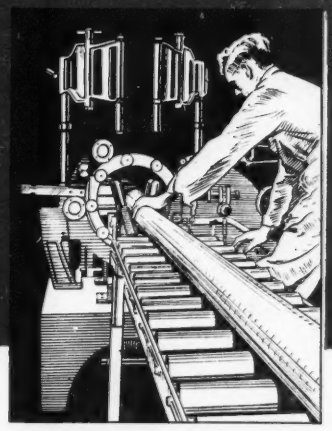
NEATNESS · SPEED AND PERFECT PROTECTION





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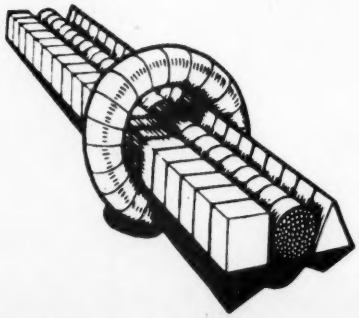


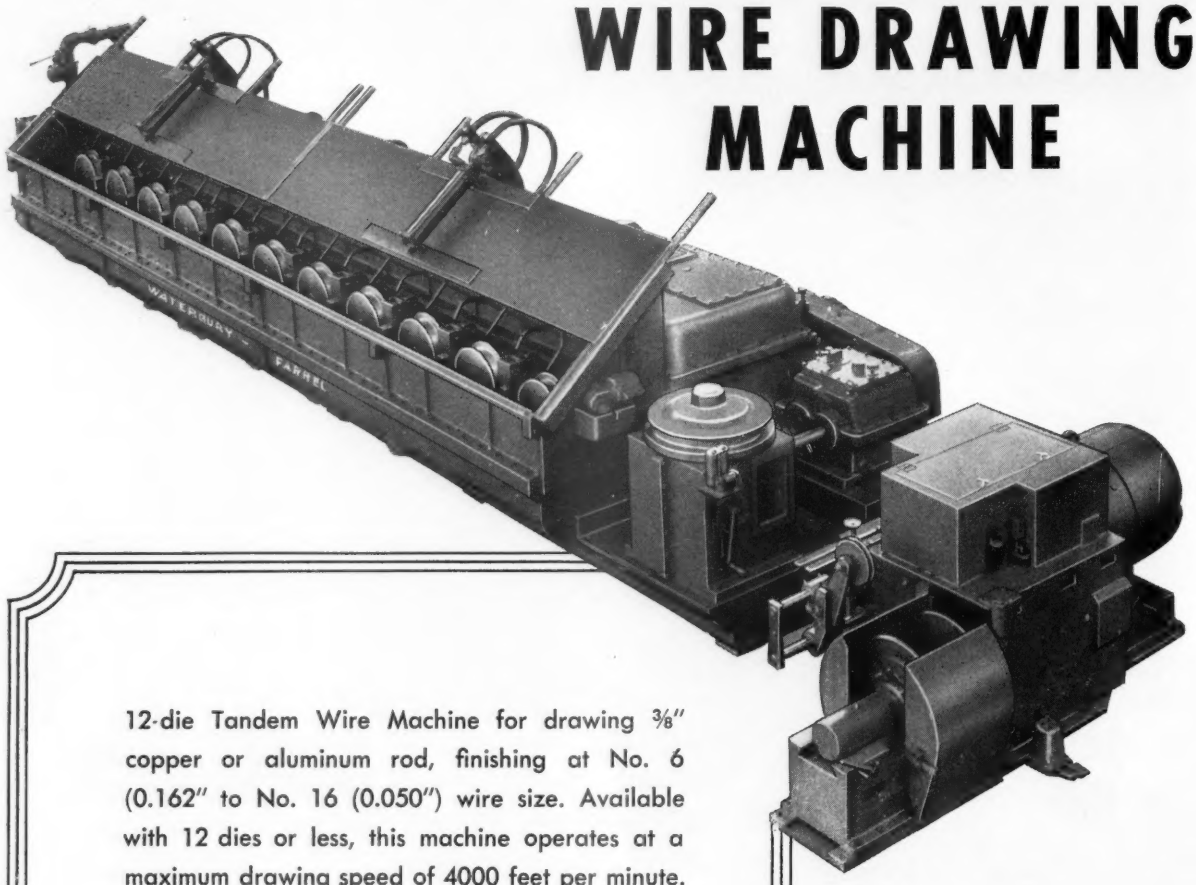
LARMUTH

POWER WRAPPING MACHINES

[illegible] 1100 SOUTH BROAD STREET [illegible] TRENTON 10, NEW JERSEY

4000 FEET PER MINUTE

WITH THIS WATERBURY-FARREL 12-DIE TANDEM WIRE DRAWING MACHINE



12-die Tandem Wire Machine for drawing 3/8" copper or aluminum rod, finishing at No. 6 (0.162" to No. 16 (0.050") wire size. Available with 12 dies or less, this machine operates at a maximum drawing speed of 4000 feet per minute.

It can be furnished for drawing on spools, or coils, or as a combination machine for both as shown.

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CHICAGO, ILL. CLEVELAND, O. MILLBURN, N. J.

WIRE AND WIRE PRODUCTS*

Reg. U. S. Pat. Off.

A monthly publication devoted to the production of Wire, Rod and Strip, Wire and Rod Products and Insulated Wire and Cable.

DRAWING — ROLLING — EXTRUDING — FORMING — FABRICATING

Vol. 26 DECEMBER, 1951 No. 12

Designated as Official Publication By The Wire Association

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Extra service
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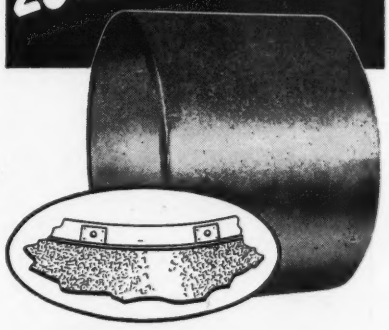

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. . . have extra strength where it is needed most—at bolt holes and base of the flange. This reinforcing makes possible the use of lighter gauge steel, saving up to 20% in weight while increasing overall strength.

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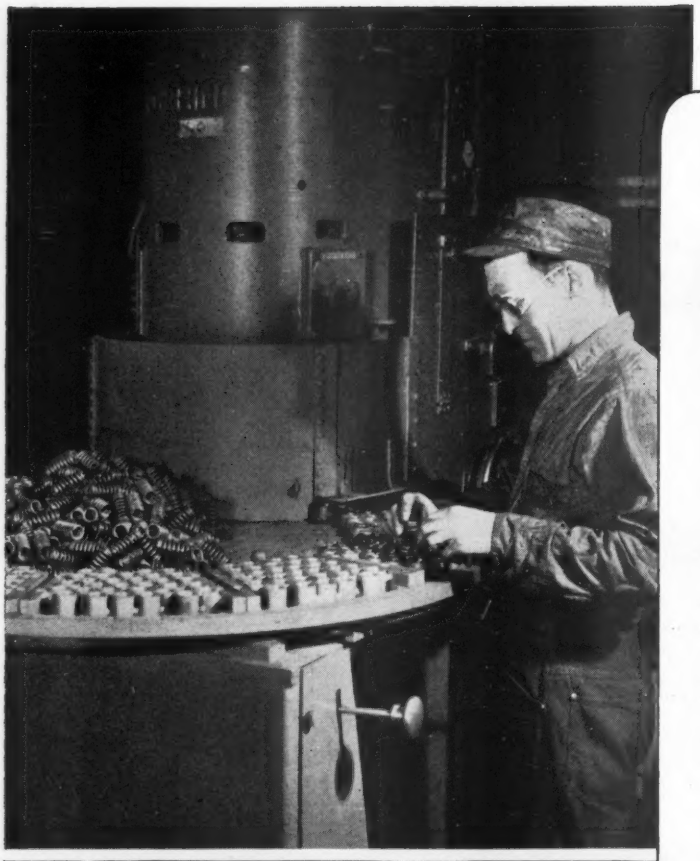

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In selecting discs for your spring grinding jobs, you'll find no better combination than the correct ALUNDUM* abrasive . . . in a vitrified bond . . . with an extra-open structure.

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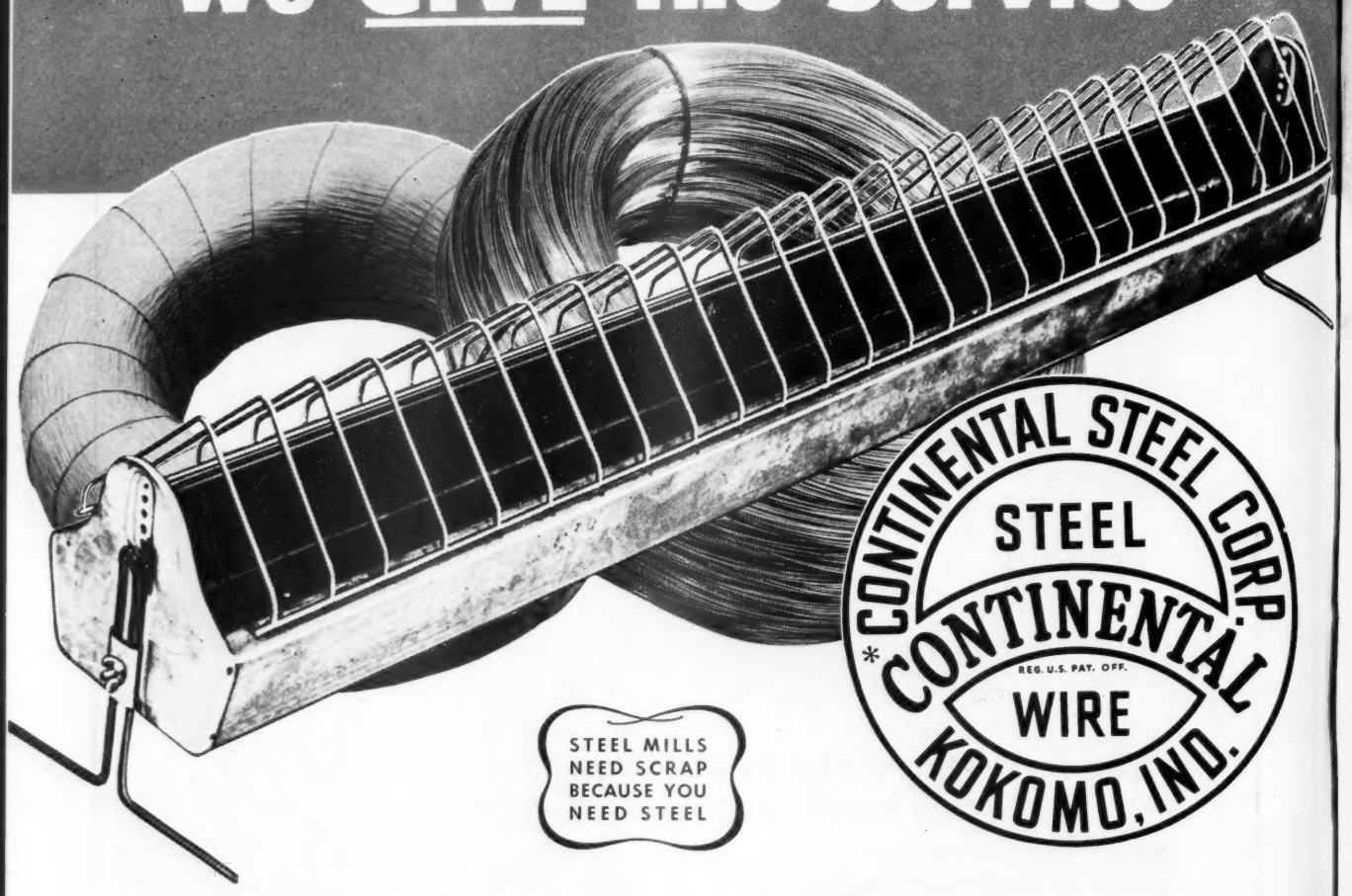

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BECAUSE YOU
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Making wire that will work for our customers . . . that's our job at Continental. These wire users know when they place their wire requirements with us that they can depend on Continental's interest and ability to supply them with exactly what they need in temper, finish, or special shapes. They know they can expect the type of close, personal service that often results in the saving of both time and money. That's why year after year they select Continental as their chief source of supply for wire.

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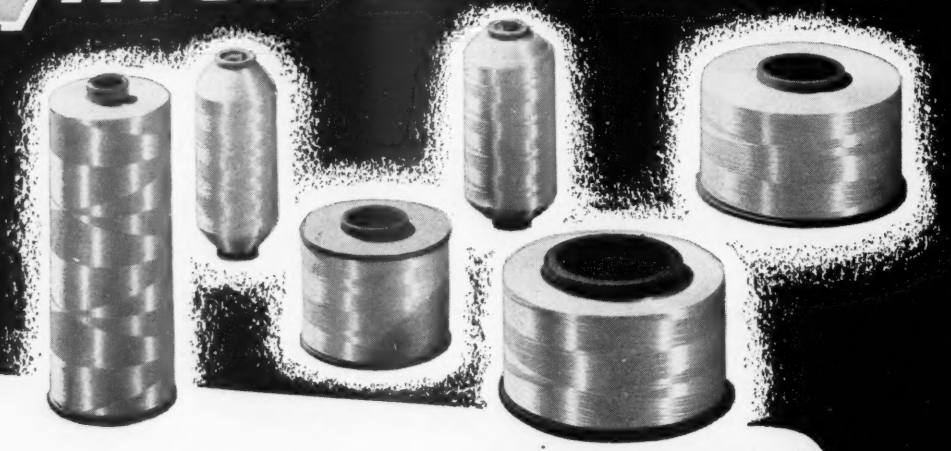

Cut material, time and inventory costs

To meet a specific need of many manufacturers, Glass Fibers originated VITRON 300 glass yarn—a new strand size—in low-twist constructions. So rapidly are low-twist 300's becoming a standard of the industry, that Glass Fibers has also made available low-twist 450's and 225's as well, all in a complete range of constructions and packages.

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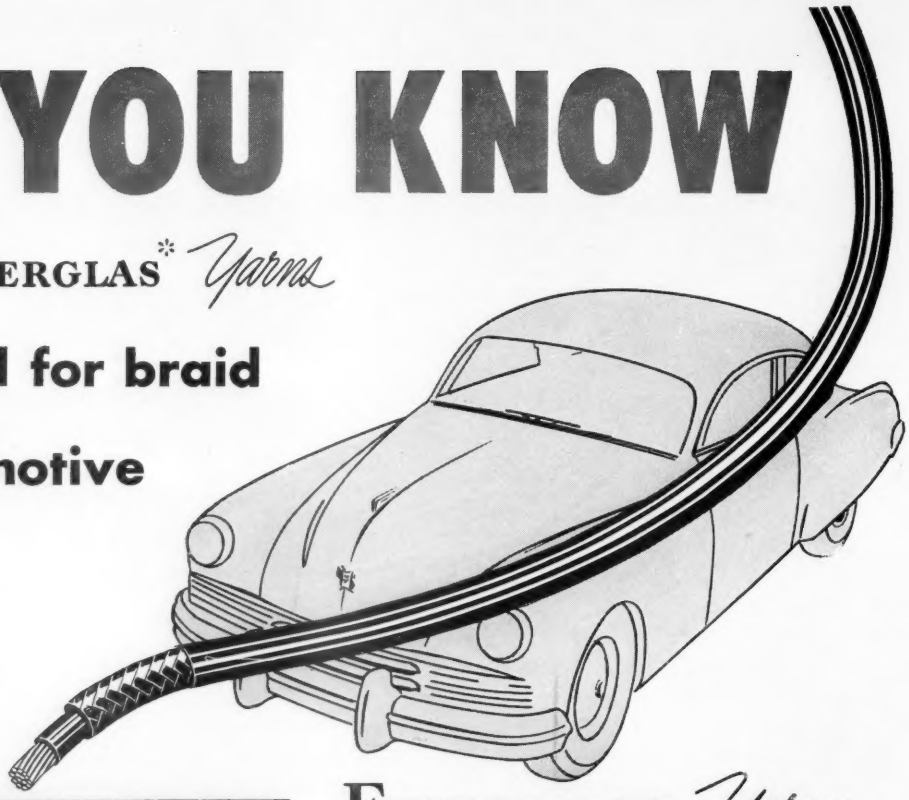
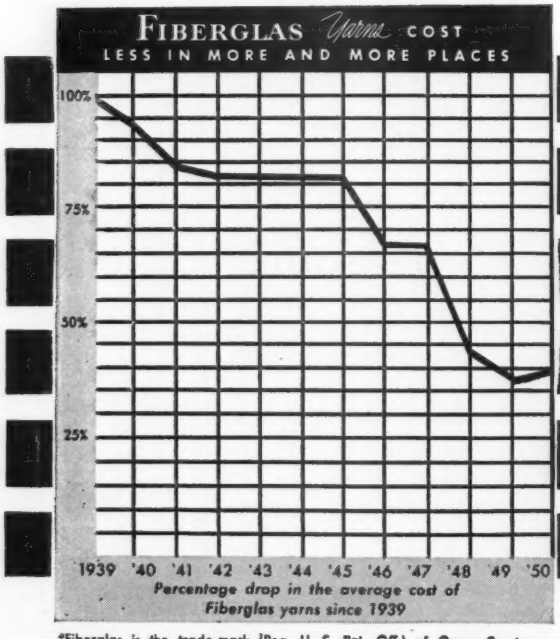
DO YOU KNOW

why FIBERGLAS* *Yarns* are used for braid in automotive wire?

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LESS IN MORE AND MORE PLACES
100%
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50%
25%
1939 '40 '41 '42 '43 '44 '45 '46 '47 '48 '49 '50
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FIBERGLAS *Yarns*

- WILL NOT BURN ...give extra protection in soldering
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- ARE LOW IN COST!

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FIBERGLAS IS IN YOUR LIFE...FOR GOOD!

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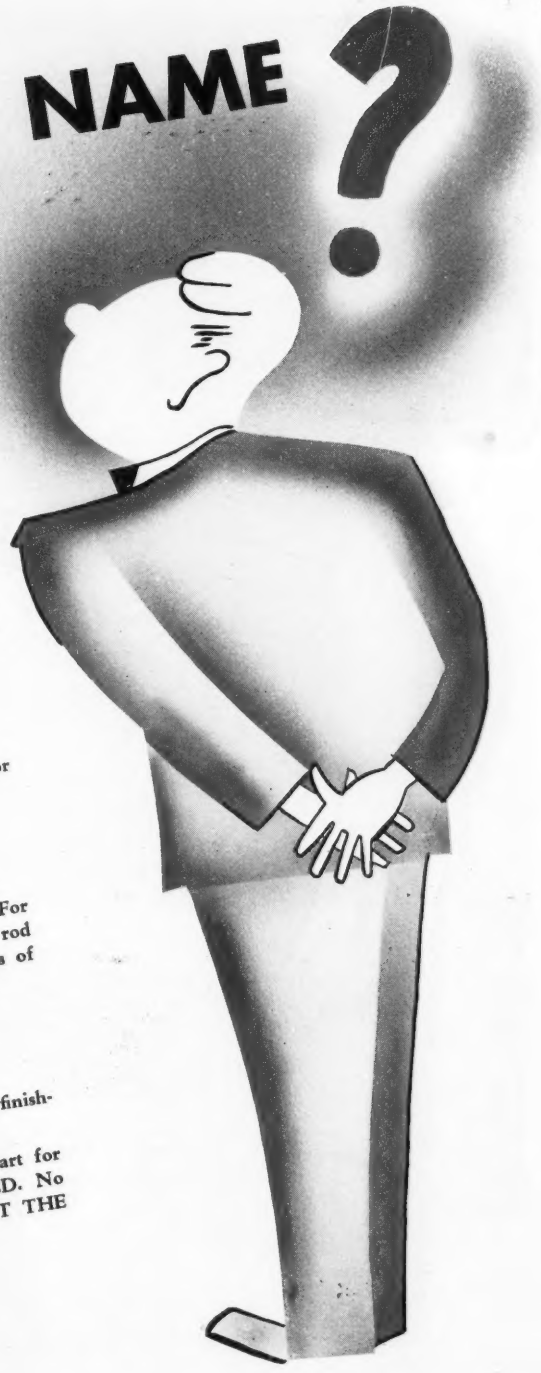

The wire coating compounds, which Harold Trembicki originated and developed, are as well known to the wire industry as he is. From now on, those fine coatings will be sold under the Trembicki label.

It isn't difficult to grow used to new product names, for, as Shakespeare would say, "What's in a name? They're the same old coating compounds which Trembicki has been talking about for years". You will know them as:

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for high and low carbon steel wire—for immaculate wire mills—for complete rust protection—for excellent die life—for long, long solution life—for faster, easier, cheaper production, with no sull-coating or baking.

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for drawing copper-coated and liquor finish wire, for brighter surface, free from discoloration.

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for drawing stainless steel wire without acid cleaning. For coating after "dry-cleaning" high and low carbon rod and wire, for perfect physicals, for enormous amounts of steel saved, for doing away with acid nuisance.

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Like the frosting on the cake, we saved the best part for last. ALL PRICES ARE RADICALLY REDUCED. No high overhead and operating costs, SO *YOU* GET THE BENEFIT!

*Pat. Pending

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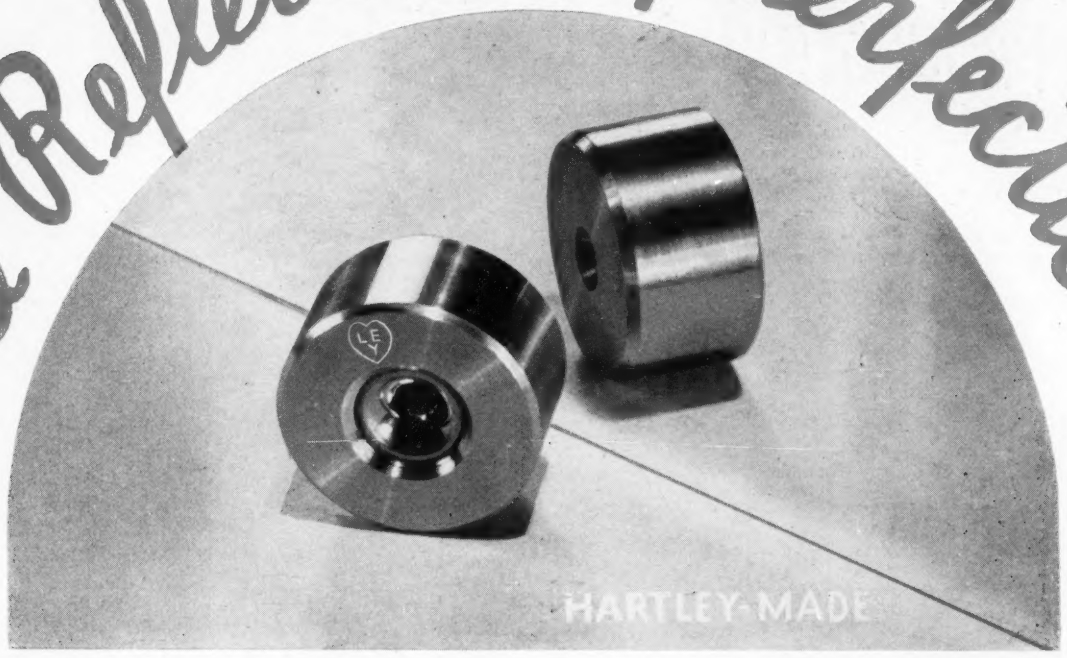

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is diamond lapped—holds keen edge longer.

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INDUCTION-BRAZED
to insure strongest bond between tip and shank.

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of cold drawn high-carbon steel is tough, stiff and strong.

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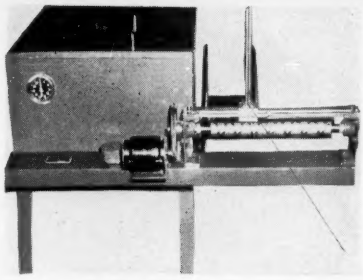
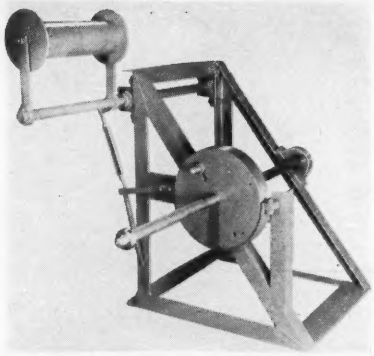
DAVIS EQUIPMENT
FOR ELECTRIC WIRE AND CABLE

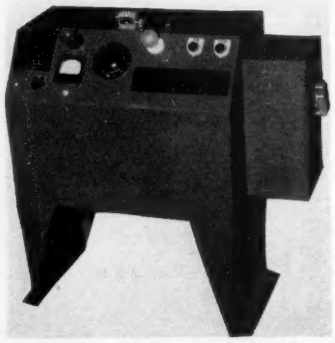


1. Davis Takeup or Reeler engineered specially for spooling covered wire at speeds up to 1,000 feet per minute. Equipped with Davis' automatic traverse and automatic tension, and wire speed indicator for reels up to 30" diameter.

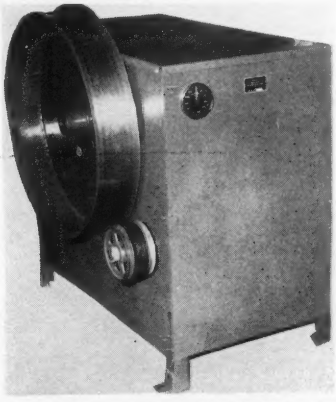
5. Davis Measuring Machine. Adjustable for wire or cable up to 1½" in diameter. Equipped with two knurled wheels to prevent slippage. Speeds up to 2,000 feet per minute.



2. Davis rugged Reel Stands are built for reels up to 30" in diameter. All Davis Reel Stands are equipped with ball bearings, feeder rolls, and automatic tension brakes.



3. The famous Davis Spark Tester unit for use in locating current leaks in covered wire. Usually located between Capstan and Takeup, but can also be used during a rewinding operation. Warning light or horn informs operator of breaks in covering.



4. Capstan designed and built by Davis especially for drawing covered wire from extruders. Variable speed drive and adjustment for wire speeds up to 1,000 feet per minute. Transfer pulley and speed indicator included with Davis Capstan.

Any equipment will be specially engineered and built for you to fit your particular needs. Let this new and progressive organization demonstrate to you what fast, competent and courteous service can mean. All orders will be given definite shipping dates that will be adhered to. The DAVIS policy of low prices will be continued.

Write today for detailed information!

DAVIS EQUIPMENT

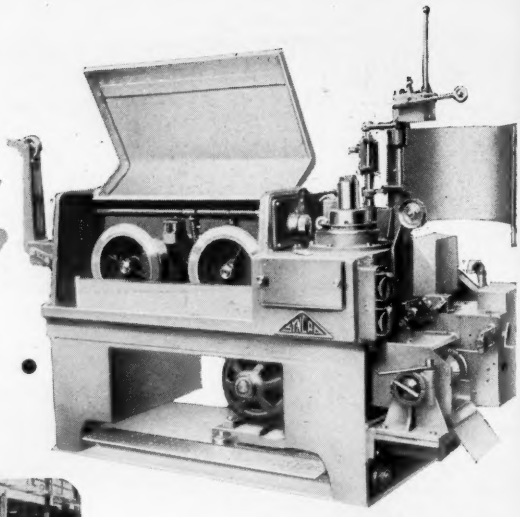
DAVIS ELECTRIC CO. • WALLINGFORD, CONN.

Successors To The R. L. Davis Electric Co., Inc.

HARNESS TESTERS • PAY-OFFS • TRAVERSES

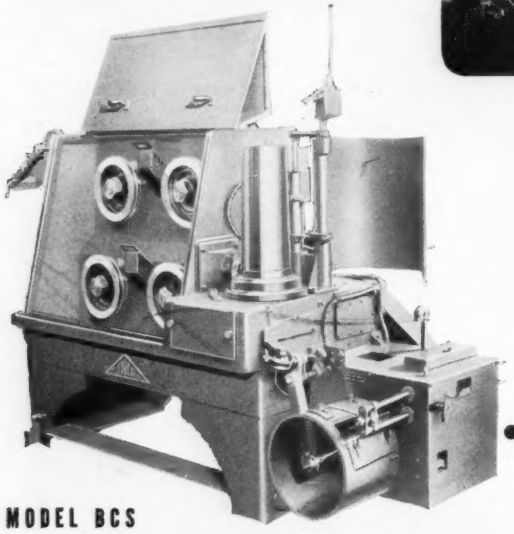
SPARK TESTERS • SPOOLERS • TAKE-UPS

for defense
INCREASE your
Capacity...



MODEL BBS

FOR
DRAWING
STAINLESS
high carbon
AND OTHER
high tensiles...



MODEL BCS

A choice of two advance design, wet, fine-wire drawing machines suitable for drawing stainless, high carbon and other high tensile materials . . . Model BBS-2 shaft and Model BCS-4 shaft. These are in demand where high speed continuous operation is needed to meet the high pressure requirements of today! They are available as COILER or COILER-SPOOLER MACHINES similar to those shown in the illustrations. Both can be furnished with water cooled coiler blocks and spooler units up to 100 pound capacity . . . To increase efficiency in operation they are equipped with automatic shutoffs . . . ● entry-wire snarl shut off switch . . . ● broken-wire shut off switch . . . and, ● full-package shut off switch. The spoolers are acknowledged to be of the most modern design producing clean and uniformly wound wire. Write us for more pertinent facts that will show you how your production can be accelerated.

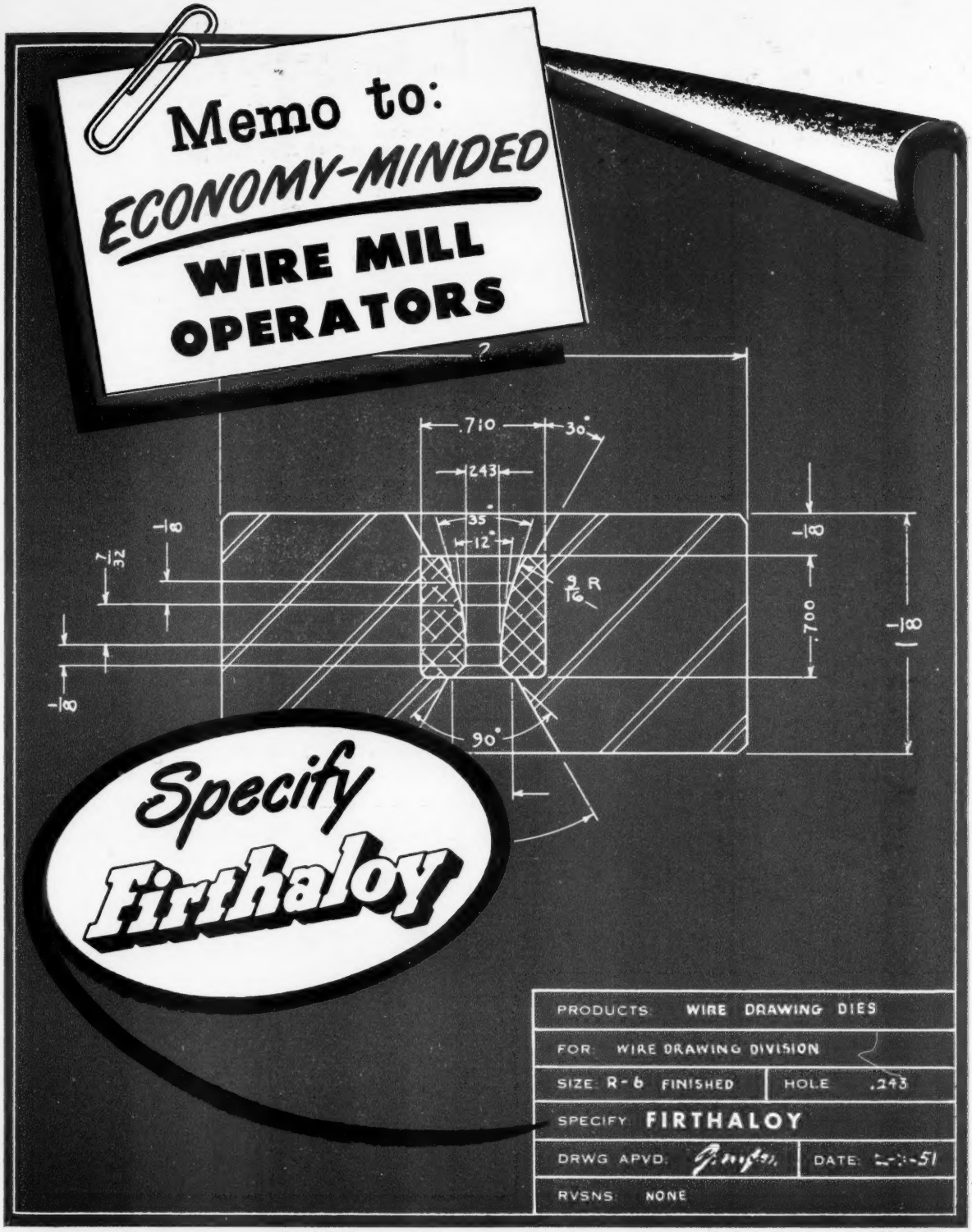
SOMETHING NEW SOMETHING BETTER

Machinery for SYNCRO the Wire Industry

MACHINE COMPANY

PERTH AMBOY • NEW JERSEY • U.S.A.

AFFILIATED COMPANY • • WINGET-SYNCRO • ROCHESTER • KENT • ENGLAND



R-225

Firth Sterling

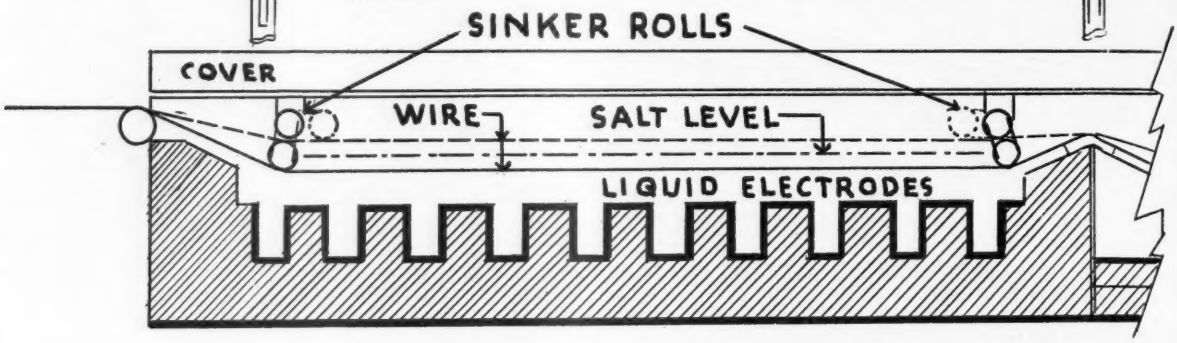
STEEL & CARBIDE CORPORATION

General Offices: 3113 Forbes St., Pittsburgh 30, Pa.

DETROIT • DAYTON • CLEVELAND • HARTFORD
NEW YORK • CHICAGO • PITTSBURGH
PHILADELPHIA • LOS ANGELES • BIRMINGHAM

SCALE — FREE

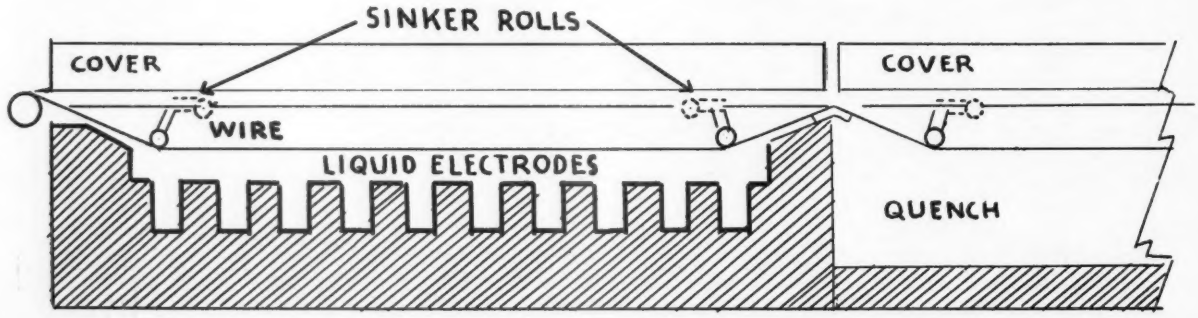
Holden Liquid Electrode Furnace covered by U. S. Patent #2512206. Salt baths for both high heat and quenching furnaces covered by two U. S. patents issued. Other patents pending.



PROCESS OPERATIONS:

1. Wire passes through a high temperature salt at from 1500 to 1700° F.
2. Wire travels into a quenching furnace operating at from 800 to 1000° F.
3. Wire enters first water wash station which maintains a salt content approximating 5% to 20% in water solution.
4. Wire passes to second washing station, where a zinc phosphate coating is formed on the wire to act as a vehicle for carrying soaps or other lubricants.
5. Hot water tank dissolves off any soluble salts. These go to drain.
6. Drying station is optional—depending on size of wire.

WRITE FOR DETAILED INFORMATION



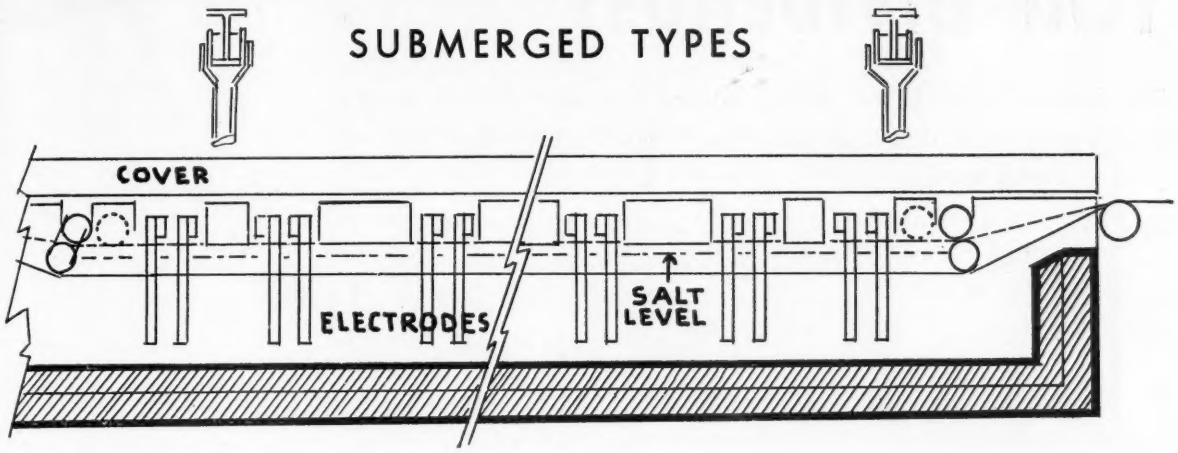
THE A. F. HOLDEN COMPANY

P. O. Box 1898
New Haven 8, Conn.

11300 Schaefer Highway
Detroit 27, Michigan

WIRE PATENTING

SUBMERGED TYPES



BENEFITS OF PROCESS:

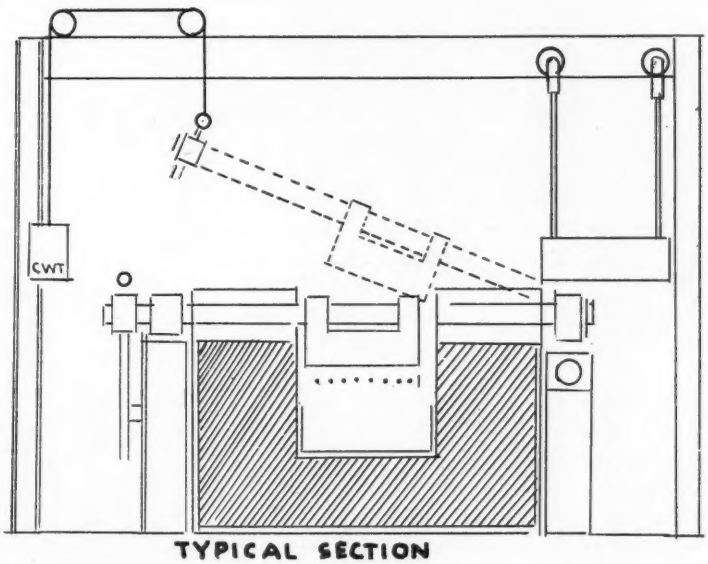
...Complete elimination of acids.

...No lime coating or other alkali agents required.

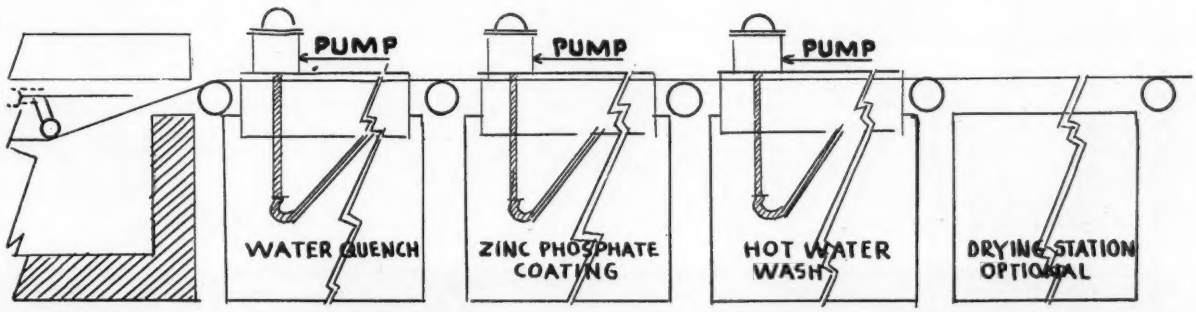
...No hydrogen embrittlement.

...Less float of wire required to operate a plant where wire can go directly from takeoff blocks to draw bench.

...Manufacturing costs are no greater —and usually lower—than present methods.



TYPICAL SECTION



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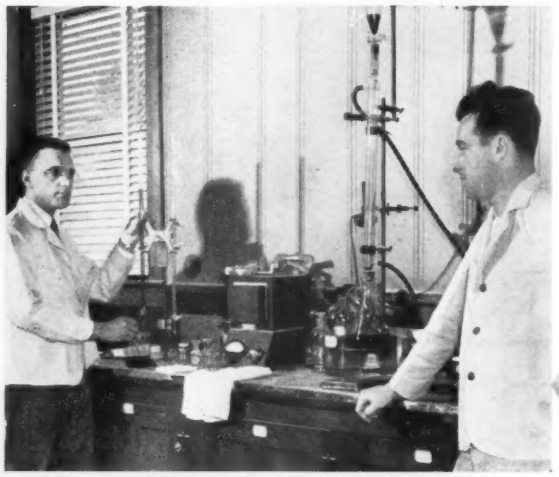
MILLER RESEARCH PAYS YOU DIVIDENDS!

The famous "STEELSKIN" Brand, known and used throughout the world, consists of a line of specially engineered lubricants for all your drawing requirements.



Lab. view showing Dr. H. Grey Verner, Ch. E., Director of Research, and W. C. Breidinger, Ch. E., Supt., Chg. Plant Process Control. It is here that advanced lubricants are developed for you.

Drawing compounds that make possible higher drawing speeds and lower production costs are a result of forty years of constant research and development. When you order "STEELSKIN" Compounds, you can be sure they are technically right—engineered to give you economical production.

Uses For "Steelskin"

Rope, screen cloth, nail, poultry netting, fence, needle, spring, tire bead, coat hanger and many other types of steel and alloy steel wires; copper, brass, nickel and other non-ferrous wires; and special lubricants for drawing all seamless tubing, stampings and deep-drawn parts.

WHAT DO YOU LOOK FOR IN YOUR DRAWING COMPOUNDS?

1. Performance—Lubricants that give you the utmost satisfaction in mill operations—quality control, superior finishes, improved die performance.
2. Economy—Miller's research has developed superior lubricants that save you as much as 1/3 to 1/2 on your drawing compounds — by scientific production methods.
3. Cooperation — Our laboratory facilities are at your service in finding the correct answers to special or difficult problems. You are invited to avail yourself of them.

Write today to

Steelskin BRAND REG U.S. TRADE MARK

R. H. MILLER COMPANY, INC. HOMER, N. Y.

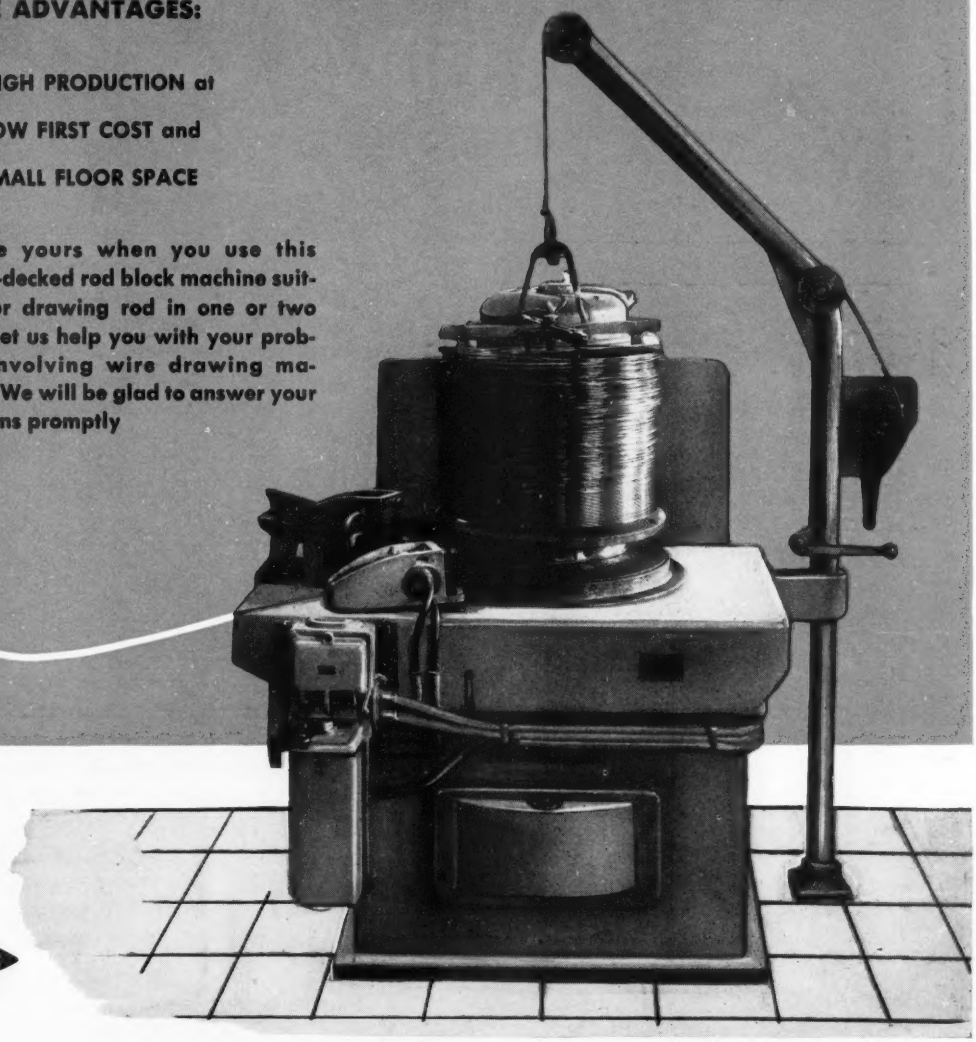
Wire · Tubing · Stamping · Deep Drawing Soaps and Compounds

Wire drawing machines

THREE ADVANTAGES:

1 HIGH PRODUCTION at
2 LOW FIRST COST and
3 SMALL FLOOR SPACE

will be yours when you use this double-decked rod block machine suitable for drawing rod in one or two steps. Let us help you with your problems involving wire drawing machines. We will be glad to answer your questions promptly



MH

MORGÅRDSHAMMAR

MORGÅRDSHAMMARS MEK. VERKSTADS AB · MORGÅRDSHAMMAR · SWEDEN

America needs your daily pound of scrap

IF every man, woman and child in America provided one pound of scrap each day, they would supply just about enough to produce the 105 million tons of new steel that the industry hopes to make in 1951.

Like yeast in breadmaking, scrap is essential to steelmaking. Scrap speeds up the process because scrap is already-refined steel. Every ton of scrap used replaces one ton of pig iron. Thus scrap also saves raw materials, because each ton of pig iron represents two tons of iron ore, one ton of coal and half a ton of limestone.

The continuing co-operation of every reader of this page is urgently requested to overcome a scrap shortage daily growing more critical. Turn in--by selling your scrap to regular scrap-gathering channels--any and all broken, worn-out or obsolete things made of iron and steel--machines, tools, pipe, boilers, structural parts and other "junk" you'll probably never use again.

Do your part in the campaign to help meet America's need for more steel. Enlist now for the duration. Remember that the scrap you furnish may help you get more steel.

YOUR SCRAP YOUNGSTOWN IS NEEDED

The Youngstown Sheet and Tube Company

General Offices--Youngstown 1, Ohio
Export Offices--500 Fifth Avenue, New York
MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

The steel industry is using all its resources to produce more steel, but it needs your help and needs it now. Turn in your scrap, through your regular sources, at the earliest possible moment.

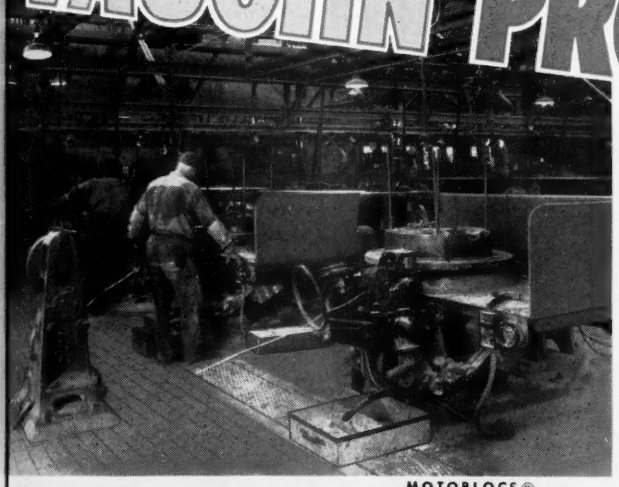
Vaughn®

COLD DRAWING MACHINERY

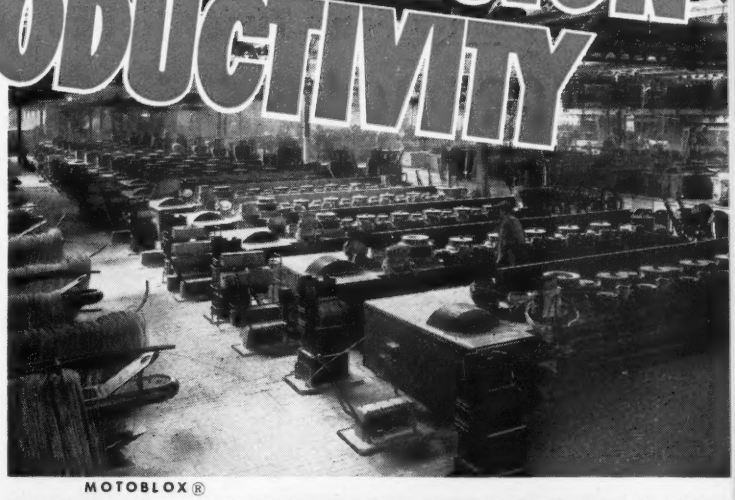
. . . gives you these basic benefits

in every field of application

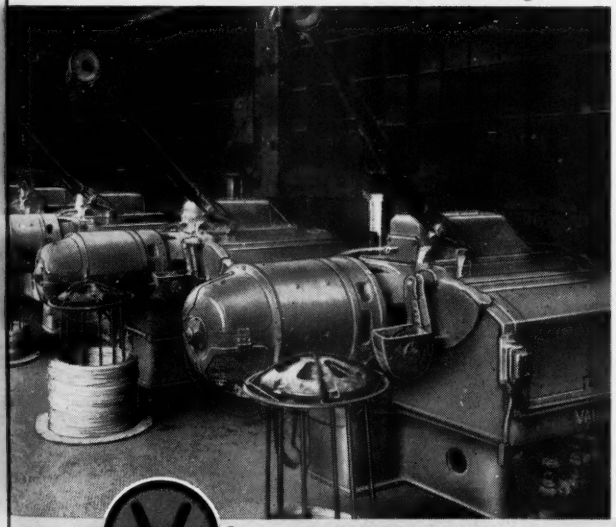
COLD DRAWN PRECISION VAUGHN PRODUCTIVITY



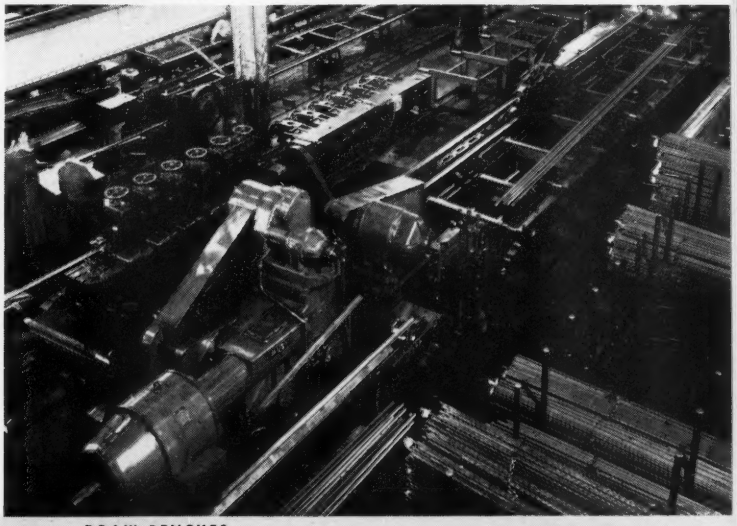
MOTOBLOCS®



MOTOBLOX®



CONTINUOUS MACHINES

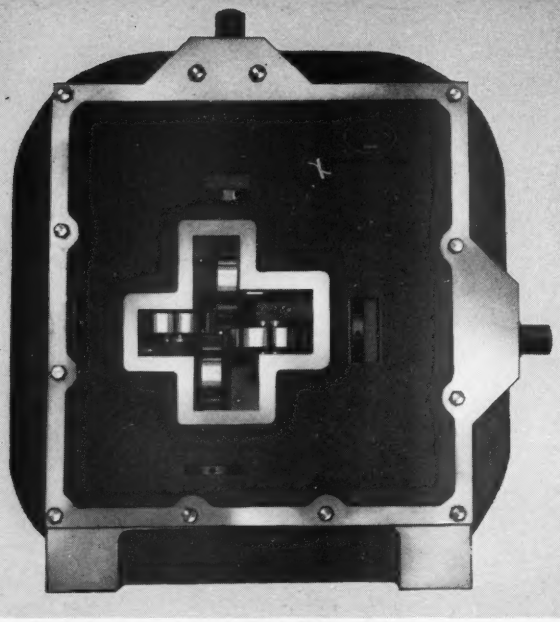


DRAW BENCHES

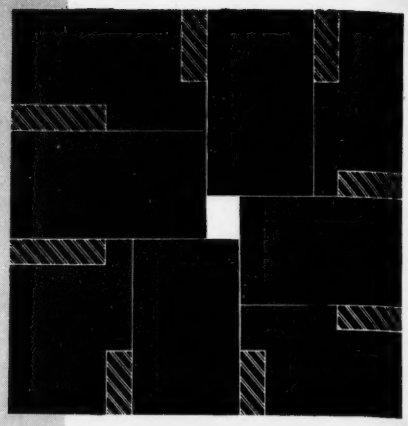
The VAUGHN MACHINERY COMPANY

CUYAHOGA FALLS, OHIO, U. S. A.

COMPLETE COLD DRAWING EQUIPMENT . . . Continuous or Single Hole . . . for the Largest Bars and Tubes . . . for the Smallest Wire . . . Ferrous, Non-Ferrous Materials or their Alloys.



THE FENN TURKS HEAD offers many advantages over ordinary methods of shaping wire and rod. Featuring adjustable roll boxes, *it rolls* the material on both horizontal and vertical planes simultaneously. Available in friction drive or power drive.



UNIQUE FEATURE of Turks Head design is shown in this diagram of roll assembly. Four converging rolls form material to the desired shape. Square and rectangular shapes may be produced in varying dimensions by a simple roll adjustment.

Only Fenn Turks Heads bring you

MORE ACCURATE WIRE SHAPING AT LESS COST

A radical departure from the conventional draw-die, the Fenn Turks Head is characterized by the unusual operation and exceptional versatility of the die, in which the sides of the opening are four adjustable rolls. When the rod or wire is being formed into the more common square or rectangular shapes, the rolls may be adjusted to produce any width or thickness, in dimensions ranging from 0 to capacity.

EXCLUSIVE ADVANTAGES

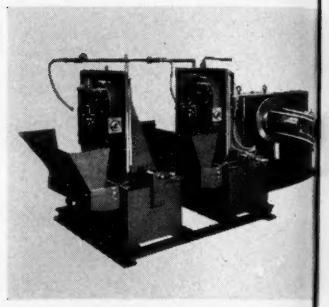
Increased Accuracy. When wire is shaped by ordinary rolling methods, the final rolling operation is apt to affect the dimensional accuracy secured by the edging process. By doing both these jobs at once — at the same point on the wire — Turks Heads eliminate this hazard. Also, since they roll *with* the work, Turks Head roll-surfaces are subjected to far less wear than rigid dies. This keeps wire sizes constant for a much longer period, to tolerances of ±.0005.

Greater Economy. Turks Heads eliminate the need for a costly inventory of stock as well as multiple dies, save the labor of frequent changing and redressing, and require less power than other methods.

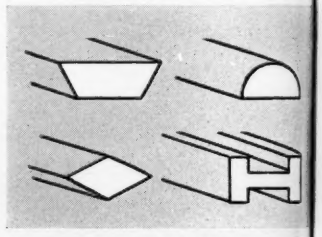
Faster. Besides their two-in-one operation, Turks Heads permit faster wire speeds.

GET THE DETAILS

on the many benefits Fenn Turks Heads can bring to your own wire-shaping operations. Contact your nearest Fenn Distributor, or write direct to THE FENN MANUFACTURING COMPANY, 1853 Broad St., Hartford 1, Conn.



FENN ROLLING MACHINES are built to take all sizes of Turks Heads, in double stand (as shown) or single stand.



ALL FROM THE SAME UNIT. Producing a wide variety of shapes from a single Turks Head is simply a matter of changing the specially ground rolls.

FENN MACHINES ARE SOLD BY:

ATLANTA
J. R. Walraven
BALTIMORE
Refer: Calco Mach'y Co., Phila.
BIRMINGHAM
Quinn & Quinn
BOSTON
Refer: Reynolds, Inc., Providence
BUFFALO
Syracuse Supply Co.
CHICAGO
Neff Kohlbusch & Bissell, Inc.
CINCINNATI
The Seifreat-Elstad Machinery Co.
CLEVELAND
Wm. K. Stamets Co.
COLUMBUS
The Seifreat-Elstad Machinery Co.
DALLAS
C. J. Harter, Machinery
DAYTON
The Seifreat-Elstad Machinery Co.
DETROIT
The Chas. A. Strelinger Co.
GRAND RAPIDS
Joseph Monahan
HOUSTON
C. J. Harter, Machinery
INDIANAPOLIS
State Machinery Co.
KANSAS CITY, MO.
Robt. R. Stephens Machinery Co.
LOS ANGELES
Hoffman & Heartt
MILWAUKEE
Neff Kohlbusch & Bissell, Inc.
MINNEAPOLIS
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NEW ORLEANS
Stauss & Haas, Inc.
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A. C. Cook
NEW YORK
The Silvers Machinery Co.
NORFOLK
Tidewater Supply Co. Inc.
PHILADELPHIA
Calco Machinery Co.
PHOENIX
Hoffman & Heartt
PITTSBURGH
Wm. K. Stamets Co.
PROVIDENCE
Reynolds, Inc.
ROCHESTER
Syracuse Supply Co.
SAN FRANCISCO
C. F. Bulotti Machinery Co.
ST. LOUIS
Robt. R. Stephens Machinery Co.
SEATTLE
Star Machinery Co.
SYRACUSE
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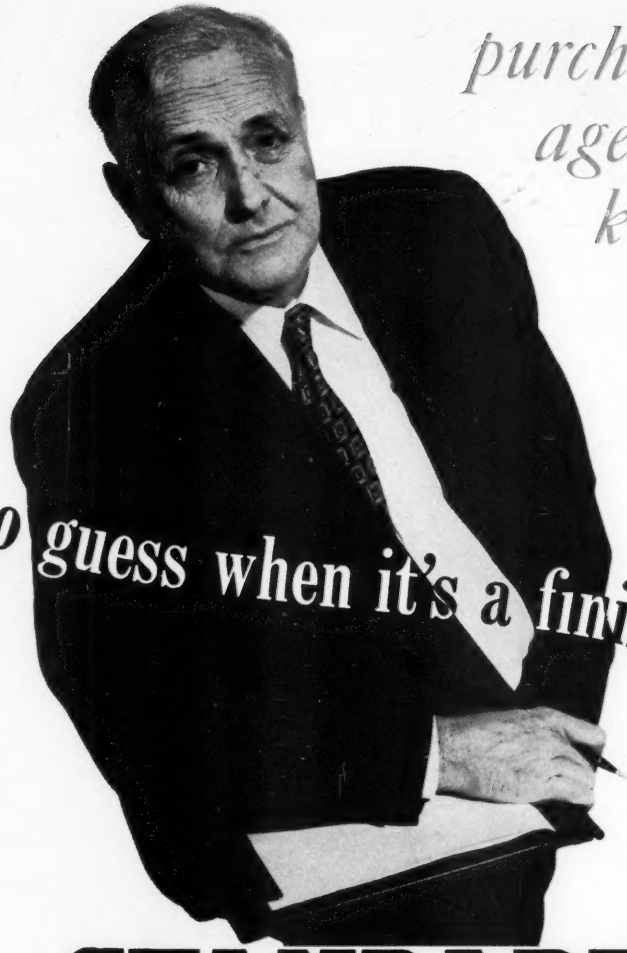
TORONTO, WINDSOR
Williams & Wilson Ltd.
FOR EXPORT:
Indianapolis Machinery Export Co., Inc., New York, N. Y.

FENN

Forming metal for better and stronger products at lower cost

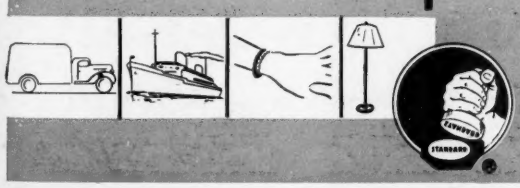
purchasing agents know...



there's no guess when it's a finish by...

STANDARD

Superior on-the-job performance and quality have linked Industrial Finishes by STANDARD to Industry since 1870.



Purchasing agents who have no time for guesswork and speculation as to which industrial finish is best for their purposes, consistently choose Industrial Finishes by STANDARD.

This is because these men realize the greater demands of hard wear and industrial abuse. They know they must have finishes that give superior performance, that stand up better under punishing conditions, and that still retain their luster and attractiveness. For many years, Industrial Finishes by STANDARD have continually met the test and have proven to be uniform in performance. It is easy to see, then, why purchasing agents have continued to put their confidence in STANDARD.

Finishes to meet U. S. Government specifications.

STANDARD VARNISH WORKS
a division of
STANDARD-TOCH CHEMICALS, Inc.
MANUFACTURERS SINCE 1848
COATINGS • COMPOUNDS • CHEMICAL PRODUCTS

NEW YORK
2600 Richmond Terrace
Staten Island 3, N. Y.

LINDEN, N. J.

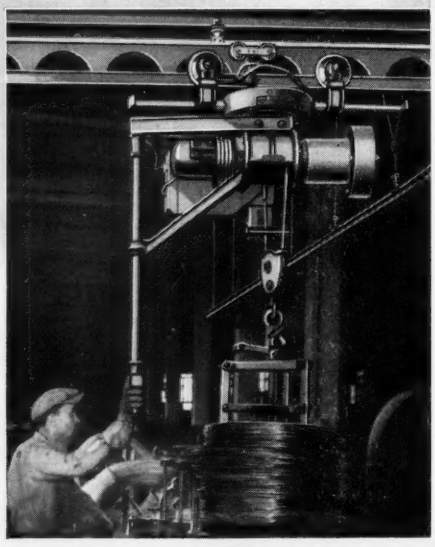
CHICAGO
2600 Federal Street
Chicago 16, Ill.

SPEED PRODUCTION *with* *Easy Operating*

BLOCK-STRIPPING HOIST CARRIERS

Smooth operating Cleveland Tramrail block-stripping hoist carriers have been especially designed for this service and are serving many mills in the United States and Canada.

Safe, easy to operate, the equipment permits a man to take care of more blocks and draw heavier bundles. Older men can keep pace with younger men when Cleveland Tramrail block-stripping hoist carriers are provided.



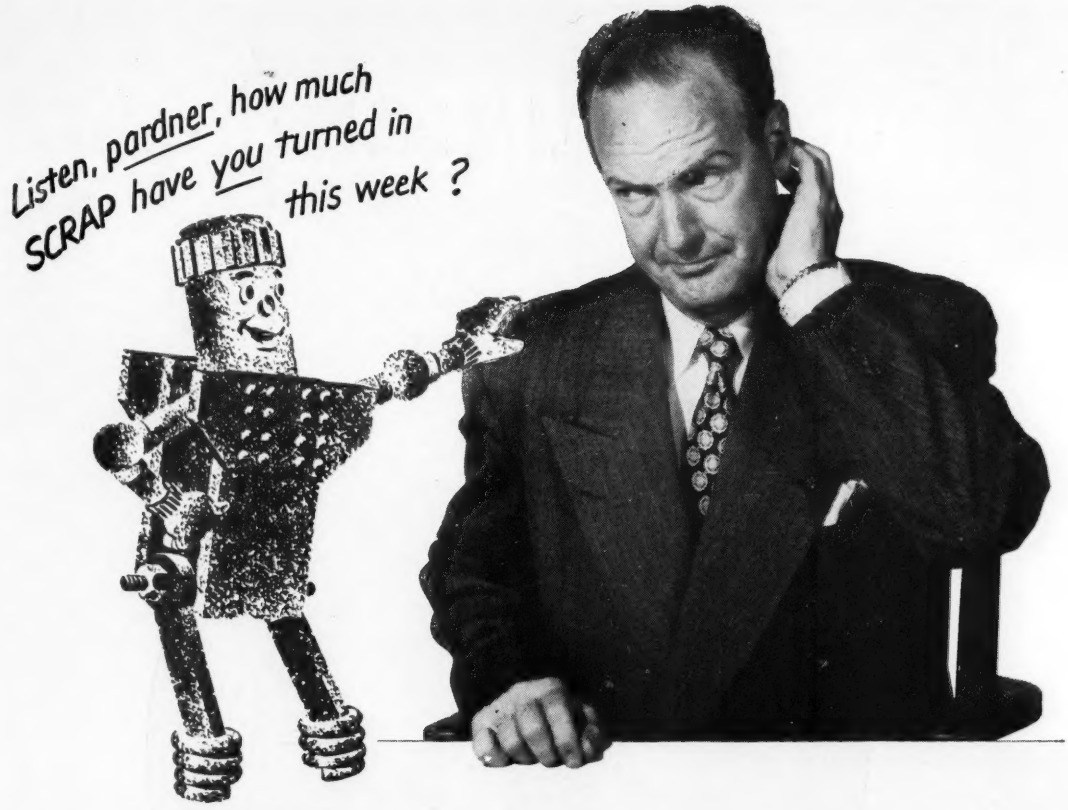
• Electric hoist, push-button operated. Hand-propelled carrier with convenient rigid arm. Serves internal and external stripping.

GET THIS BOOK!

BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
9204 East 288th Street, Cleveland, Ohio

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT



Today, the steel business is your business

—*it needs all your SCRAP, Now!*

SUPPOSE that every steel user were suddenly told that he had to turn in a half-ton of scrap before he could get a ton of steel. It would start the most gosh-almighty treasure hunt for scrap that ever happened.

In effect, this "no-scrap, no-steel" situation virtually exists. For without *all* the scrap that industry can search out and start on its way to the mills, steel production will surely drop. It's as serious as that.

More scrap is urgently needed. Today the mills are turning out more steel than ever before. But they're scraping the bottom of the barrel as far as scrap is concerned. Defense and domestic demands for steel simply cannot be met unless at least 100,000 tons of "purchased" scrap roll into the furnaces—*every day*.

The bulk of this scrap must come from industry. That's why we're asking for your all-out help. That's why it's so important that you make the drive for scrap part of your daily operations. Make it your business to encourage every employee to report any obsolete, broken or worn-out machinery, tool or equipment that has seen its day. From this dormant "junk" must come the heavy melting scrap that the mills need most. Don't let your scrap lie idle; send it on its way. How about it, pardner?

You'll find your local scrap dealers listed in the yellow pages of the phone directory.

This page would ordinarily be used to tell you about

AMERICAN MANUFACTURERS WIRE

but, because without SCRAP we cannot produce steel, we are asking instead for your all-out help in getting more SCRAP to the mills.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
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The Wire Outlook

Profits and sales for the first nine months of the year are generally better than in 1950 in terms of dollar volume, but it is doubtful that the unit sales have increased substantially—the effect of higher prices. Taking industry as a whole, the percentage of net earning has actually decreased.

The new attitude of Washington is not to take issue with corporate earnings, but rather that a healthy net must be earned if business, large and small, is to be able to be of help to the government in its rearmament program. The government needs both the productive assistance of corporations—and their taxes.

Retail sales are good, even if not up to merchants' hopes. The trend is upward and reflects the higher wages being paid and the higher employment levels. While the proponents of siphoning off our excess spending power by taxation to check inflation still sound off, their theory is unsound and impracticable as long as the government and its agencies not only make no attempt to curtail *their* spending, but constantly seek new ways to squander our money. The tax money is spent so fast that it is in itself highly inflationary. The same money is in circulation, but the wage-earner gets no benefit from it.

Basic changes in the CMP are likely to be made soon, especially with respect to steel. The system is not working as smoothly as hoped and has served to slow down getting steel and other metals into the right channels. One of the difficulties has been that CMP metals have been over-allotted by about 12%. Correction of this is to be made early in 1952, as duplicated orders, called the "attrition factor", have not shown up in this period as much as in World War II.

Curtailment of operations in many fabricating mills is spreading as metal shortages increase. Strikes at copper, lead and zinc plants have also forced producers to reduce shipments. It is felt that copper allocations for 1952 must be made substantially lower because of the inadequacy of supply and the gravity of the copper scrap situation. Every effort is being made to increase production here and in South America.

Plant expansion plans are likely to be soft-pedaled in 1952. Home building will probably be 20% under 1951 next year. Consumer goods production is not to be cut further, but as an offset, heavy industry production may get less metal. Showing that industrial activity is high, this year's consumption of electric power has been 10% higher than in 1950.

There has been no tapering off in the demand for wire and wire products, although there have been shifts from one kind to another. Nails continue in heavy demand and in short supply. The shortage of zinc is cutting into the production of galvanized wire. Bolt and nut makers are running far behind schedules due to rod shortages, some mills having to operate well under capacity. Defense procurement is expected shortly to put a greater strain on rivet producers—particularly for aircraft construction.

It is our opinion that labor unions are riding for a fall. Nothing could be worse than the seventh round of pay increases that industry is being readied to face. It is said that a series of "softening-up" strikes are about to be staged to make management receptive. Union leadership could be a constructive force for stability and good, but leaders' unbalanced thinking and ego is more than likely to bring about a sharp economic corrective.

Nevertheless, a hopeful attitude of mind pervades managements in spite of inflation, shortages and the threat of war. In the wire industry we are indeed fortunate that transition from a peace to a war economy can be made with practically no re-tooling. It is a good business!

—from the Editor's Desk

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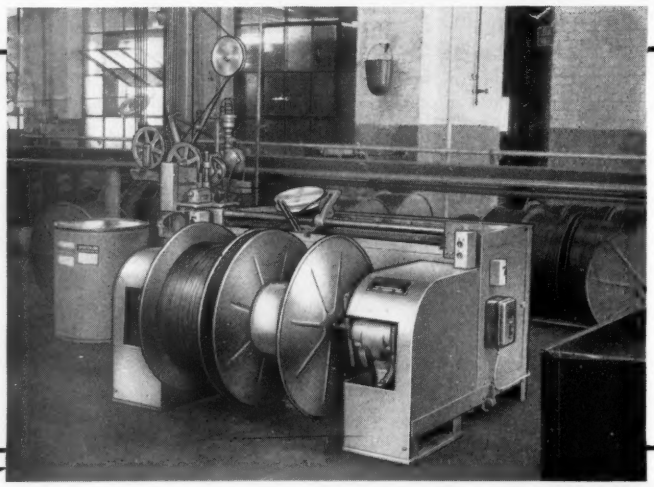

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See Page 1171 for a complete listing of JLE Products for the Insulated and Bare Wire Industry.

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WIRE AND WIRE PRODUCTS

A monthly publication devoted to the production of Wire, Rod and Strip.
DRAWING — ROLLING — EXTRUDING — FORMING — FABRICATING

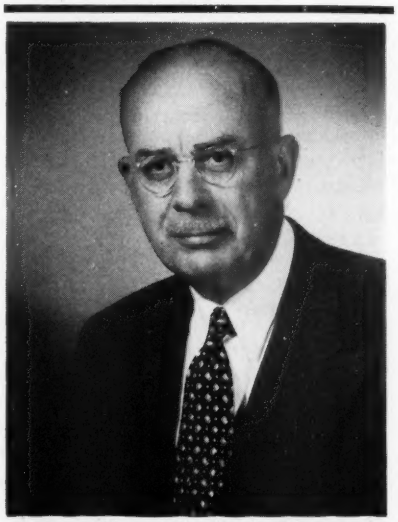
Vol. 26 DECEMBER, 1951 No. 12

THE ALUMINUM SITUATION

by J. H. DeKlyn

Manager of Massena Operations
Aluminum Company of America
Massena, New York

This interesting talk was delivered by Mr. DeKlyn at the Annual Wire Association Convention in Chicago last October 24th at a Non-Ferrous Section technical session. After securing a degree in mechanical engineering from the Rensselaer Polytechnic Institute in 1915, Mr. DeKlyn joined the Curtiss Aeroplane Company in Buffalo as Aeronautical Engineer. In 1916 he was made a member of the National Advisory Committee for Aeronautics at Washington, D. C., and Langley Field, Va., where he served also in a similar capacity. In 1920 he joined Alcoa's Pittsburgh office as Mechanical Engineer, was made General Foreman of their Collapsible Tube Department in 1921 at Edgewater, N. J., and in 1922 was transferred to Detroit, Mich., as Superintendent of the Extrusion Plant. Mr. De Klyn was moved to Massena in 1928 where he held posts successively as Assistant Superintendent, Superintendent and Works Manager of the Fabricating Division. On April 1st of this year he was promoted to the job of Manager, Massena Operations.



J. H. DeKlyn

The topic I intend to discuss with you this morning is unlike those that have been covered here during the past two days because it is economic rather than technical in nature. Since aluminum is one of the three basic controlled materials, I believe it is safe to assume that most of you have some interest in "The Aluminum Situation."

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The current aluminum situation is complex in nature, but simple to describe—there just isn't enough metal to satisfy all the demands being placed on the available supply. With military and defense requirements for aluminum mounting rapidly, it appears that the remaining supply of metal will not be ample to avoid increasing cutbacks in the manufacture of civilian products during the coming months. The short-range supply picture for aluminum is anything but optimistic.

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As you probably know, the total aluminum supply is dependent on three sources—imports, scrap recovery, and domestic production of primary metal. Obviously, a reduction in the quantity of metal from any of these sources decreases the total supply accordingly. A number of different factors have played a part in aggravating the supply situation.

First of all, imports of aluminum have declined rapidly this year, and not much imported metal is expected to be available in the near future. The quantity of foreign metal offered for sale in the American market this year will be more than 100 million pounds less than last year, when 353 million pounds of aluminum ingot were imported into this country. The decline in imports is caused by the fact that other Nations also need aluminum for growing military requirements.

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A second factor worsening the supply situation is the shortage of aluminum scrap. Various Government orders regulating the flow and use of scrap have tended to interfere with the historical pattern of recovery through normal channels. Earlier this summer, the Government also slashed scrap prices in half and put ceilings on prices that dealers could charge for scrap metal. The effect of this has been to dry up the sources for scrap, as metal is being held off the market with the hope, probably a futile one, that the ceiling price regulation will be relaxed.

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The supply situation has also been aggravated by abnormally low water conditions in the Northwest and Southeast which have reduced gen-

eration of electric power in those areas, forcing cutbacks in aluminum production. In the middle of September, the drought in the Northwest caused the Bonneville Power Administration to cut off a supply of interruptible power to several smelting plants. Heavy rains have since permitted Bonneville to restore this power, but an estimated 6 million pounds of badly needed aluminum were lost during the shut-down.

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Government stockpiling of aluminum is another reason for the dismal supply situation. Although production of new metal has been trending upward during the year, the increase has been due in part to the rising output of reactivated high-cost facilities, all of which goes into the national defense stockpile. Two weeks ago, the Government decided to divert production of aluminum earmarked for shipment to the stockpile during the last four months of this year to industry in order to help fill CMP allotments of the metal in the fourth quarter. Diverting aluminum from the stockpile will provide some relief in reducing the disparity between supply and demand, but it will not provide enough metal to permit the acceptance of any additional orders by producers.

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Most of you are familiar with the Controlled Materials Plan and know something of its operation. CMP is basically a sound system for distributing a limited supply of material, and there's no reason why it shouldn't work if properly administered. I must admit, however, that most of us in the aluminum industry have been quite disappointed with the workings of CMP so far. The main trouble has been caused by the issuance of too many CMP tickets, calling for more allotments than the supply of metal warrants. In the fourth quarter, the Defense Production Administration handed out allotment tickets for a total of 681,475,000 pounds of aluminum, even though the total supply of metal was estimated to be only 598 million pounds. This over-allotment amounted to more than 83 million pounds, or nearly 14% above the estimated fourth quarter supply.

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CMP officials have announced that the over-allotment in the fourth quarter was done on purpose, since they believed that many of the tickets handed out to manufacturers would never be presented to the suppliers' mills. The anticipated failure of manufacturers to cash in all their tickets is commonly referred to in Washington as "slippage" or "attrition." Being unfamiliar with the latter word, I consulted the Second Edition of Webster's New International Dictionary the other day and found that the preferred definition for "attrition' is, and I quote: "Grief for sin arising from imperfect motives, as fear of punishment or a sense of shame.' The word "grief" in the definition accurately describes what has resulted from over-allotting, for we have seen none of the "attrition" which the Government so hopefully anticipated. As one official in our company stated recently: "If tickets are out for scarce materials, they'll be used; just like ration tickets for porterhouse steak in the last war—you didn't let them gather dust."

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In all fairness, however, it must be admitted that CMP officials probably had some justification in expecting a certain amount of attrition. During World War II, the Government over-allotted by 10 to 20%, and the extra CMP tickets actually failed to materialize as orders. Overlooked, however, was the fact that the Nation's economy was then operating on a complete wartime basis, with very limited civilian production. Today, of course, conditions are vastly different. Everyone is trying to keep civilian production operating at a satisfactory level while the Nation mobilizes for defense. Obviously, it's going to be difficult "to have our cake and eat it too." We, in the aluminum industry, are aware of the many problems confronting CMP officials during these trying times. The effective operation of the plan can be aided materially if every manufacturer using aluminum adheres closely to the rules and regulations governing CMP. Although there is plenty of confusion right now, we have confidence in CMP and expect the situation to improve in the near future.

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The metal shortage has, of course, curbed the manufacture of civilian goods employing aluminum wire, rod, and bar. However, the increase in demand for these basic mill products for military and defense-supporting applications is now greater than that for any other type of semi-fabricated aluminum product, including sheet, tube, and extrusions. As a result, allotments of metal for aluminum wire, rod, and bar are being increased at the expense of other mill products.

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Although rising aircraft production is naturally requiring larger quantities of aluminum wire, rod, and bar, there are a number of other reasons why the demand for these products is increasing. Primarily responsible are four broad fields of application which either did not exist or were of minor nature during World War II. One of these is the Atomic Energy Commission's program. Another is the guided missile program. Further information regarding these two programs is of course restricted. The third field taking more of these products is ordnance and munitions. The problem of fighting wars in distant places has put important emphasis on weight saving. This factor, plus even greater shortages of brass and steel, has led military designers and weapon manufacturers to make numerous aluminum substitutions, shell cases and fuses being good examples.

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The fourth, and by far the greatest cause of the growing demand, particularly for aluminum wire, is the electrical conductor field. During the last war practically no aluminum cable was stranded, but today the Defense Electric Power Administration is calling on aluminum to fill the lion's share of its needs in the vital power expansion program now underway in this country. Electric utilities are being urged to make greater use of aluminum conductors, and this is opening up a relatively new field for the metal in secondary distribution lines. Various Government agencies have

also been urging electrical equipment manufacturers to employ aluminum wherever possible. As more manufacturers turn their attention toward aluminum, faster progress will undoubtedly be made in the development of better fittings and connections. All this augurs a larger share of the markets for aluminum throughout the entire electrical field in future years.

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Of course, aluminum conductors, mostly in the form of A.C.S.R., have had a growing use for over fifty years in the field of high-voltage transmission. But the dire shortage of copper, which everyone seems to agree will be of long duration, has focused attention on aluminum for broader conductor applications. Although the trend toward the substitution of aluminum for copper is now putting an added strain on the already tight aluminum supply, the experts have no doubt as to the wisdom of such a move when they compare the long-range outlook for both metals. Not long ago Defense Production chief Manly Fleischmann said: "We hope the aluminum situation will be cured by the end of next year. But the copper shortage—like death and taxes—will always be with us."

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The optimism regarding the long-range future supply of aluminum is based on the anticipated output of additional smelting facilities that are now being constructed and financed by private industry under Government authorization. The net effect of this gigantic expansion program, which is to cost substantially more than a half billion dollars, will be to increase the aluminum industry's primary smelting capacity by about 85%. Approximately 1.3 billion pounds of new annual capacity will be added, raising the nation's total to well over 2.8 billion pounds.

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Under the expansion program authorized by the Government, **Aluminum Company of America** was allocated a total of 410 million pounds of additional annual smelting capacity. Of this, 70 million is being added by the construction of two new potlines at the existing Point Comfort, Texas Works where power for aluminum production is generated by internal combustion engines using natural gas as fuel. These facilities are scheduled to begin production next April. Another 170 million pounds allocated to Alcoa will be accounted for by a new four-line plant now under construction at Wenatchee, Washington. This plant, which will obtain power from the Rock Island Dam development, is expected to start producing aluminum in July of next year.

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The remaining 170 million pounds of new capacity allocated to Alcoa will consist of a new four-line plant to be located in Milam County, Texas, near the town of Rockdale, approximately 60 miles south of Waco. This plant represents a unique development in the aluminum smelting field, since it will be the first such plant in the United States to use electric power generated by burning lignite for fuel. Large deposits of this semi-bituminous coal exist on the site of a prehistoric river bed in the Milam County area. The lignite is to be mined in the vicinity of the power plant, which will be designed, constructed and operated for Alcoa by the Texas Power & Light Company. Initially, the power plant will be supplied with lignite which has been crushed and dried for use directly as fuel for the steam-driven equipment that will generate the electricity required for aluminum production by the Rockdale plant. Later, plans call for the installation of a carbonization plant, using a process developed by the Bureau of Mines, with the help of the Texas Power & Light Company, to remove low-temperature tars from the lignite. The remaining "char" will then be used for fuel, and valuable chemical by-products will be recovered from the tars by distillation. In this way, it is hoped to reduce power production costs so that the Rockdale plant can be competitive with those using electricity generated by hydroelectric and natural gas power stations. Aluminum production is scheduled to begin at Rockdale about a year from now, and prior to the completion of the power plant. The initial quantities of electricity required for partial operation of the smelting plant will be made available by the Texas Power & Light Company from other generating sources.

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Reynolds Metals Company was allocated a total of 360 million pounds of additional capacity under the Government's program. Of this, 50 million pounds which had been started prior to the program was completed and placed in operation last July. This was done by adding pots to existing lines at the Troutdale, Oregon plant, which increased capacity by 4 million pounds, and by installing more pots and a fifth line at the Jones Mills, Arkansas plant, totalling 46 million pounds of additional capacity. Electric power required for the Jones Mills' expansion is being generated at the Arkansas Power & Light Company's big Lake Catherine steam plant.

★ ★ ★

Another 150 million pounds allocated to Reynolds will be obtained from a new four-line plant now under construction near Corpus Christi, Texas. Diesel engines burning gas will generate the power required by this plant, which is expected to begin partial operation early next year. Another 40 million pounds of new capacity will be obtained by installing more pots to the three existing lines of the Longview, Washington plant. These additional facilities are expected to be in operation by late Spring of next year.

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Reynolds' remaining Government allocation of 120 million pounds was announced only recently by the Defense Materials Procurement Agency. It is reported that the increase will consist of new facilities in Arkansas, presumably an addition to the Jones Mills plant. No starting time has been announced for these additional Arkansas facilities, but a year would probably be required for their construction. Power for their operation is expected to be furnished by the Arkansas Power & Light Company.

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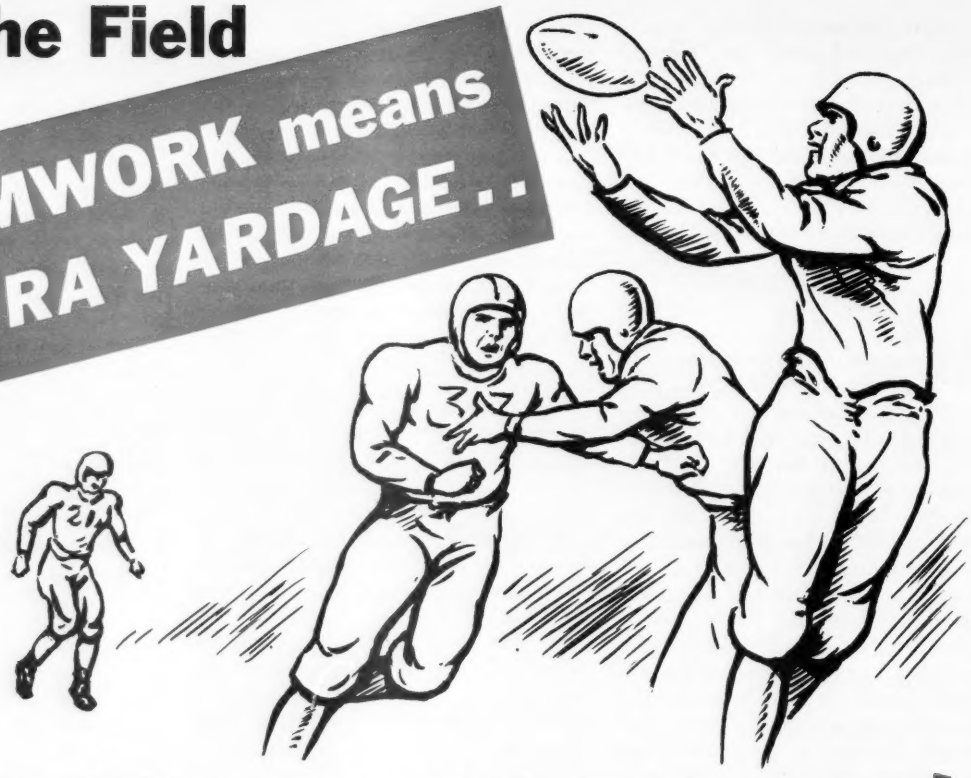
The largest allocation—440 million pounds—of new capacity authorized by the Government was granted to the **Kaiser Aluminum & Chemical Corporation.** The addition of an

(*Please turn to page* 1191)

On the Field

TEAMWORK means EXTRA YARDAGE . .



In the Mill — *EXTRA TONNAGE!*

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In wire mills, it's the same story. Those with the best production records chalk up extra tonnage through teamwork down the line. Contributing to such records is the team of Magnus Metal Coat 267 and Magnus Dri-lube 400. These two materials, designed and produced to work together, offer many advantages that any mill looking for methods to increase production should look into . . .

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- **Protection against rusting**
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- **Cleaner mill working conditions**
- **Lower cost per ton of wire drawn**
- **Consistent follow-through at high speeds**
- **Brighter wire surfaces . . . without discoloration**

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CLEANERS • EQUIPMENT • METHODS

The Communications Wire Program of the Signal Corps

by Major Howard F. Cleary
Contracting Officer, Wire and Cable Section
Signal Corps Procurement Agency
Philadelphia, Pennsylvania

In this talk, delivered at the opening session of the annual Wire Association Convention in Chicago on October 22nd, Major Cleary set forth information of general interest to manufacturers on the methods and manner of procurement of communications wire and cable by the Signal Corps, the general existing requirements of the main classes of wire and cable and the prospects of their requirements in the immediate future of primary items. He also gave information concerning research and development work being conducted by the Signal Corps on wire and cable types of interest to them.

Major General George I. Back, Chief Signal Officer of the United States Army, is pleased that the Signal Corps has been given this opportunity to participate in your Annual Convention. It is recognized that the Wire Association plays a vital role in the accomplishment of the mission of the Signal Corps. Without skillful engineers, chemists, metallurgists and production men our task to supply wire and cable and other communications equipment to our Armed Forces would be an impossible one.

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Today I will discuss the manner and methods used by the Signal Corps in the procurement of wire and cable required by the Armed Forces for tactical use, for use in our fixed plant wire communications networks, and for use as maintenance or replacements in our equipment. In some instances, a particular wire or cable may be used in more than one of these categories but, generally speaking, the requirements of the Armed Forces are as I have already outlined. I will discuss, by category, some of the present requirements and the probable future requirements that may exist for wire and cable.

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A question that frequently arises is, just how does a requirement for wire or cable come into being? The answer is that requirements come into being in various ways. Many items are consumed in use, worn out, destroyed in combat or are expended by other means, and require direct replacement. Needs in the field frequently give rise to requests for development of new wire or cable items in connection with military communications. This need, when finally recognized and approved through various military channels, becomes a Signal Corps project at the Signal Corps Engineering Laboratories. These Laboratories translate the military need into a performance specification upon which a research and development contract is let to an industrial firm or educational institution. Upon completion of the contract, the wire or cable is then ready to be manufactured on a production-line basis to satisfy the requirements. Requirements also start with plans for defense against aggression and are based on a series of answers to the following questions:

What kinds of war should the nation be prepared to fight?
When will the fighting take place?
In what geographical areas will operations be conducted?
What size and types of military forces will be engaged?
How long will the fighting last?
Other considerations of world-wide strategy?

★ ★ ★

As we are here assembled, these basic strategic questions are being studied. When and where we must fight depends upon the enemy. Answers to some of these other questions, however, are being formulated by the Joint Chiefs of Staff. By a complex procedure, these answers will then be reduced to detailed operations and supply plans by military planning officials in the Departments of the Army, Navy and Air Force, with the result that current requirements will be adjusted and future requirements come into being.

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Now that the requirements for wire and cable have been established, let us proceed to the methods and manner of procurement. I am limiting the definition of procurement, as used here, to that phase of the procurement cycle which places a production contract with the wire and cable industry to produce the wire and cable necessary to meet previously established requirements. Now, the two methods of placing contracts are by formal advertising and negotiation. The first is a procedure whereby the Signal Corps publicly announces its requirements, invites formal bids and makes an award to the lowest responsible bidder. Under negotiation, which is provided by Public Law 413, the procuring agency chooses firms of known repute and with previous production experiences for the same or related items, negotiates with these firms relative to price, delivery, and contract clauses, and awards the contract to that firm offering the most favorable terms to the Government.

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Although it is the policy of the Signal Corps to solicit bids from all such qualified sources of supply as are deemed necessary to assure such full and free competition as is consistent with the procurement of the required supplies, it sometimes becomes necessary to limit the solicitation to a particular firm ("sole source of supply"). Sometimes it is necessary to award a contract to a particular firm in furtherance of the planned procurement program.

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I would like at this time to explain very briefly the planned procurement program. On 18 December 1950, the Department of Defense established a procurement policy de-

signed to broaden the mobilization base, and, to the extent possible with available funds, bring industry into production of military equipment. To implement such a policy, it is necessary to select a firm or combination of firms best capable of producing an item and then place contracts accordingly. In establishing more than one source, consideration must be given to geographic dispersion, using planned mobilization production schedules as a starting point for equitable allocation of contracts. After contracts are placed, an effort is made to continue existing production lines at established rates, consistent with requirements, by awarding additional contracts sufficiently in advance of required delivery to permit orderly placement of contractor's material purchase orders.

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I would like to discuss at this time the first category which I have referred to as requirements for tactical use, which includes WD-1/TT Wire, CX-1065/G Spiral Four Cable Assembly and CX-162/G Five Pair Cable Assembly, all of which are used by our troops in actual combat.

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The WD-1/TT, a new field wire is constructed of four tinned copper and three galvanized steel strands, concentric stranded and covered with overall insulation of extruded polyethylene covered by an extruded nylon jacket. It is a lightweight and durable wire that was developed in the latter part of World War II, and small quantities were actually produced. The World War II field wire, known as W-110-B, weighed about one hundred-forty pounds per mile, while the new wire weighs only forty-eight pounds and has increased talking range, better abrasion resistance and longer life under water and during storage.

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In the wire communications field, the major portion of our planning funds was spent on establishing know-how for production of this new type field wire, as we recognized this as one of our major production problems. This investment apparently has proved advantageous, as currently there are twenty-two sources successfully producing this field wire. The combined sources are nearing a production rate of about $7,500,000 worth of this field wire per month. The normal production lead time was greatly reduced because the Signal Corps at the end of World War II W-110-B Wire Program stock-piled a large quantity of stranders and at the start of the present emergency made them available to Industry. This act not only reduced the production lead time but conserved very critical material and man-power.

★ ★ ★

The CX-1065/G is a cable assembly used for field communication at carrier frequencies and consists of 1280 to 1360 feet of cable with a universal connector on each end. The cable consists of four stranded copper conductors, separately insulated with polythylene and cabled around a central polythylene core, over which is applied a belt of polythylene, a carbon cloth stabilizing tape, a stainless steel braid and a Perbunan-Vinylite jacket. At present, six firms are participating in the program and we anticipate, at peak production, that these sources will produce nearly $5,000,000.00 worth of the cable assembly each month.

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The CX-162/G is a cable assembly used chiefly for entrance cable, has a talking range of approximately twenty miles, and consists of one hundred to one thousand feet of cable with a molded terminal on each end. The cable consists of ten conductors, #19 A W G tinned copper, insulated with a thin wall of latex or Buna S insulation and then paired and cabled with fillers. A Buna S packed compound is applied over the cabled core, resulting in a cable having a diameter of about one-half inch. In order to meet the present requirements, contracts have been placed with three firms and it is anticipated that the combined deliveries will reach, at leveled production, a monthly rate of about $750,000.

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We feel that it is possible to continue production lines for these items for tactical use, somewhere near the rates given, depending of course, on actual requirements. Establishing sources and continuation of existing production lines all form a part of the planned procurement program which has been already outlined to you.

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Now I would like to discuss the second category which I referred to as wire and cable for our fixed plant wire communications networks which include lead and armored cable, bare and insulated copper and steel wire, power cable, messenger strand, guy wire, drop wire and others. A very small portion, dollar-wise, of this category has been procured under the planned procurement program.

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The majority of the wire and cable items covered within this category are either standard commercial items or standard commercial items with slight modifications necessary to fit them for military use. When need arises, we either advertise or negotiate to obtain the quantity needed.

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The third and final category I referred to was wire and cable used for maintenance and replacement parts in our equipment. These include cords, cordage, cord assemblies, special cables and cable assemblies, hook up wire, and all other miscellaneous wires and cables used internally and externally as components in the manufacture and repair of Signal Corps equipment. This category differs from the others mentioned in that the bulk of these items are procured indirectly by the Signal Corps. The sequence is as follows: The Signal Corps places orders with a prime contractor for Signal Corps equipment; the contractor in turn sub-contracts or places orders on the wire and cable industry for those items of wire and cable needed to manufacture the equipment. As a result, the amount directly procured by the Signal Corps through formal advertising or negotiation is very small when compared to the total amount of this category procured by prime contractors.

★ ★ ★

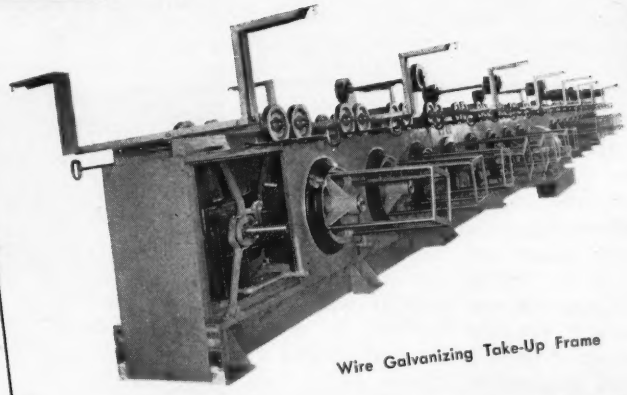
I have discussed, in some detail, the manner and methods used by the Signal Corps in the procurement of wire and cable required by the Armed Forces for tactical use,

(*Please turn to page* 1180)

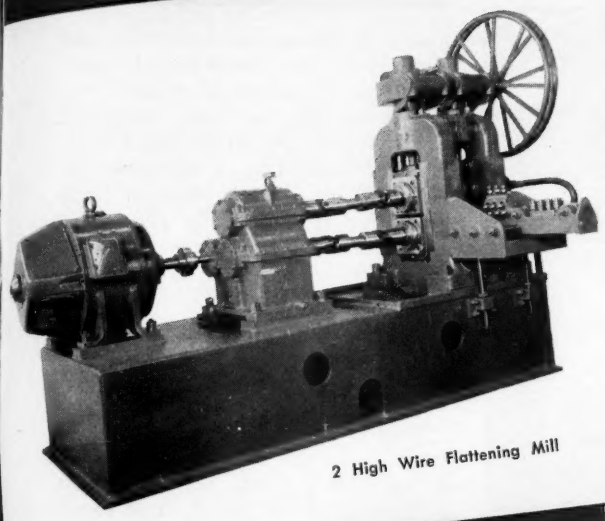
Wean

Equipment Corporation

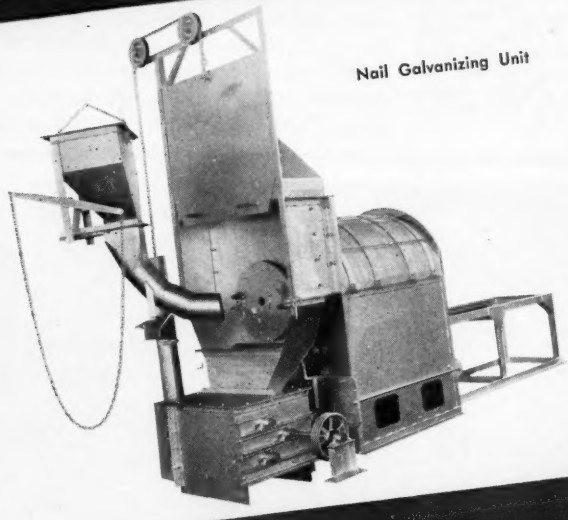
CLEVELAND, OHIO



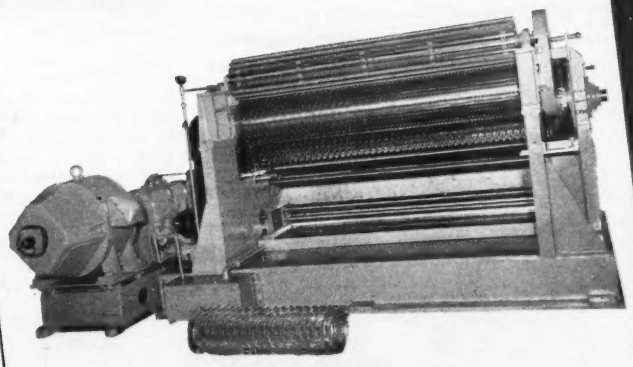
Wire Galvanizing Take-Up Frame



2 High Wire Flattening Mill



Nail Galvanizing Unit



Hexagon Netting Machine

IN the past few years tremendous progress has been experienced in the field of wire machinery. Production speeds have been tripled and quadrupled. Product quality has been greatly improved. Machines have been made easier to operate and maintain.

THE Wean Equipment Corporation has been a large contributor to this advancement. Wean wire mill specialists have designed, built, and installed wire mill equipment for the leading wire producers the world over. If you make wire you should look to Wean for the best in machinery, service, and facilities.

LOOK TO WEAN FOR WIRE MACHINERY—PROCESS OR PRODUCT

NEW PAPER CONTAINER FOR NAILS

by Richard E. Oas
Manager of Sales Promotion
Container Division
International Paper Company
Chicago, Illinois

Some of the members represented at this convention have been using the KEG-IT Nail Container in quantities for almost two years. Others have more recently started their usage on an experimental basis. For the benefit of those who perhaps are not familiar with this modern package for 100 lb. shipments of nails, permit me to give a brief description.

★ ★ ★

The container consists of seven pieces of 375 lb. test 100% Kraft corrugated fibreboard, secured with heavy staples, and assembled into a square box in such a manner that, when loaded with nails and wire tied, there are no openings at the top and bottom for the entry of casual water or dirt. The corrugated fibreboard, fabricated entirely from tough wood fibres, is of strong construction and well suited to do the heavy duty job it was designed for.

★ ★ ★

The packages are shipped in bundles, knocked-down-flat in carload lots from our factories. Depending on the size of the standard packages, the average car will contain from ten to fifteen thousand containers. It can be rapidly assembled as needed in a low cost efficient manner and requires little space for the assembly area. The semi-automatic equipment used to assemble the packages is comparatively inexpensive and flexible to the point that it is practical in some mills to make up the containers at two or even three places as needed.

★ ★ ★

Before considering the advantages of the new fibreboard container for nails, I would like to tell you something of its history and early development. The fibreboard industry for years has made many attempts to design a container that could be used for the shipment of heavy density products in bulk. Most of these attempts failed because of either high cost materials and design or improper construction of the package—resulting in

Richard E. Oas * * * * *

This paper, not listed in the printed program of the Wire Association Convention was delivered at a Ferrous Section Technical Session at Chicago on October 24th. In the paper, Mr. Oas points out that this new type of carton for packaging nails and other fasteners at the mill has won wide acceptance in wire mills during the past two years due to its strength, lesser weight, conservation of space and ease of handling.

Fig. 1—Comparison of size standard nail keg and new paper carton. *

Fig. 2—Photo showing ease with which cartons may be opened. * *

absence of the strength and ruggedness necessary to withstand the hazards of transportation. There was a recognized need, though, for a low cost, safe and practical shipping container of standard construction that could be palletized and easily handled by the manufacturer as well as his customer. It was for this reason then that so many people both in the fibreboard industry, as well as in the heavy duty fastening industry, carried on their experiments in this field.

★ ★ ★

Several years ago the International Paper Co. collaborated with General Motors in designing a Standard Parts Box for the bulk shipment of bolts, nuts, screws, washers and other fastening devices in weights up to 250 lbs. After many months of testing various proposed designs in our laboratory, and, after carefully supervised test shipments, we finally came up with a package that would, we believed, satisfactorily hurdle all of the previous obstacles and objections. With the help of General Motors and other large users of fastenings devices, the new package was introduced to the trade with mixed blessings.

★ ★ ★

At first it was understandably difficult to promote the use of, or even to secure conclusive test shipments of the container, due to the reluctance of bolt, nut and screw manufacturers to view corrugated fibreboard with favor, based on past experiences. Another hurdle was the necessity of securing railroad acceptance for specification of the Standard Parts Box in the Consolidated Freight Classification. These difficulties were overcome as the many advantages of the package become better known. In March of 1949, it was finally adopted with the help of the many shippers who made thousands of test shipments under permits.

★ ★ ★

It was only natural that this box with so many good attributes be examined carefully by the nail industry as a possible replacement for their 100 lb. keg. Additional testing and laboratory work indicated the changes necessary to adapt the Standard Parts Box as a nail shipper.

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The first carload test shipments were conducted in September of 1949. Believe me, that was a mighty important "first", as it proved conclusively that the container design was practical in this low cost application. The news of these tests quickly spread and other nail producers initiated their testing programs with the KEG-IT Nail Container. The credit for this development and its acceptance in the past two years, must be given to these pioneers who pooled their knowledge and methods of its application to existing nail manufacturing practice. I don't believe that this acceptance could have been gained without their guidance and constructive thinking.

★ ★ ★

Let's examine some of the user advantages of this new container—particularly in distribution channels. The technical details of adapting the package to your nail manufacturing have already been worked out and its good points are known. Most of the questions, from those who are not too familiar with the development, concern the jobbers and distributors.

★ ★ ★

The package is weather resistant due to its sturdy and rugged construction. The one-piece top and bottom sections exclude the casual water and dirt and afford complete protection to the contents. The top can be easily lifted for the removal of nails from the bottom section and replaced for the protection of the remaining nails in storage. Obviously, there are no special tools required to open the package or reclose it. There are no protruding nails, or slivers, or sharp hoops to injure the hands or clothing.

★ ★ ★

The new nail package can take

(*Please turn to page* 1190)

Fig. 3—Trucks are able to handle larger loads per trip in transporting nails packed in paper cartons.

Fig. 4—Photo showing space saving in Palletized Storage over nail kegs.

New Methods and Devices for the Drawing Die Shop

by Dr. Ing. W. Lueg, VDEh, VDI
Head of Technological Department,
Max-Planck-Institut für Eisenforschung,
Düsseldorf, Germany

It is one thing to drill and polish drawing dies and another to know that angles and contours are exactly as indicated to be. Dr. Lueg here describes methods and equipment that have been found helpful in the die room on the die making shop in checking the work turned out.

It is generally known that in drawing wires, bars and tubes the shape of the tool, i.e., the opening angles and the bearing length of the drawing dies, is of essential importance for the operation. Without using the right die angles and a suitable rate between bearing length and bore diameter, die wear and drawing power are high and no economical performance can be obtained. The chequing of die profiles therefore, is very important, both during the manufacture of the dies themselves and, if they are torn out, during their re-shaping.

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On the other hand experts in drawing operations will agree that present methods and devices for die profile chequing are not all perfect and hardly adapted for quick shop operation. Now, two new measuring instruments, called "Alfameter" and "Zetmeter", have recently been developed at the Max-Planck-Institut, Düsseldorf, Western Germany. These devices enable the determination of die opening angles "2 o" and of bearing length "z" in such a quick and simple way that control of die profiles and die maintenance may be considerably improved.

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The "Alfameter" serves to cheque and measure the die cones and die cone angles and works entirely optically by means of light beams entering the die cone parallel in the direction of the die axis, which are then reflected by the polished die walls. The reflected beams leave the die exit, forming a cone of light, as shown in Fig. 1, whilst the core beam goes straight through the bore. On a screen behind the die and rectangular to the axis of the optical system the reflected beams form a ring of light, which happens if the die cone has a round transverse section as for drawing round wire. Moving the screen along the axis over a determined length and measuring the diameter of the light ring in the two screen positions I and II makes it possible to determine the die angle, because the angle formed by the light cone is, on account of the mirror effect, twice the die cone angle. This measuring method was at first put forward by F. C. Elder in his USA Patent No. 2,444,639, filed in 1944.

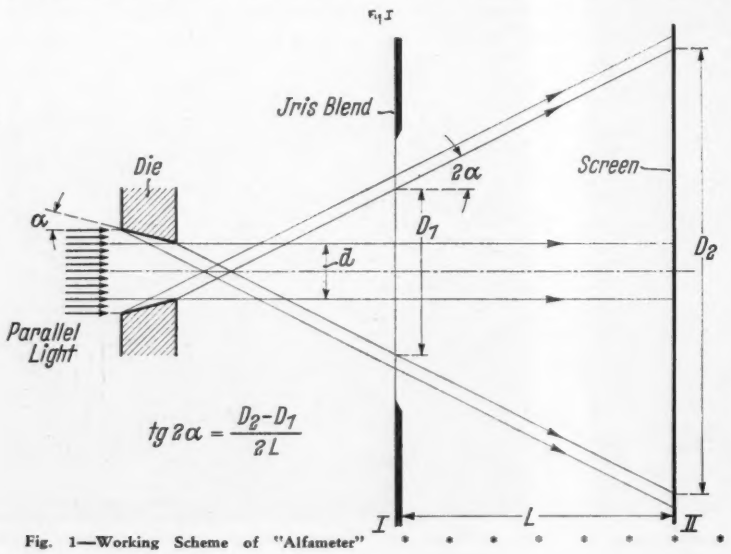

Fig. 1—Working Scheme of "Alfameter"

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It is clearly understood that the ring of the reflected light appearing on the screen will be comparatively thin, but bright and sharp edged in case of an exactly conical die entrance with sharp edges on both ends. With bell shaped die profiles, the width of the light ring will be more spread, owing to the varying die angles.

★ ★ ★

Moreover, polish and surface smoothness of the die cone walls, wear and all other irregularities have a marked and well distinguishable effect on the reflection picture. Therefore, the light reflection method also gives a very intuitive impression of the general condition of the die cones. It may be mentioned, that the method is suited, too, for the chequing of dies with shaped transverse sections as oval, square and the like.

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To facilitate cone angle measuring the "Alfameter" utilizes an iris blend and a glass screen, mounted in a fixed position, as may be seen from Fig. 1 and 2. The blend diameter can be read on a scale such as in a photo camera. After fully opening the blend and putting the die into the clamping device of "Alfameter" in such a way that the die entrance is placed on the lower table, the entire reflection picture of the die cone appears on the glass screen and may be judged.

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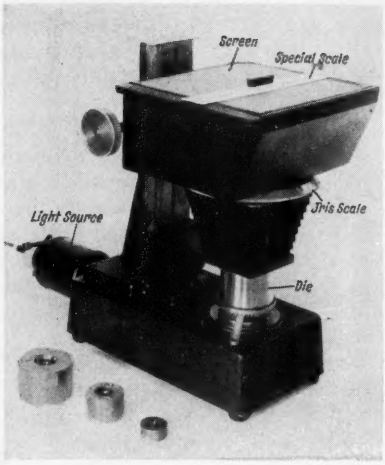

Fig. 2—Die Cone Chequing and Measuring Device "Alfameter" (1950 Type)

The "Alfameter"—as shown in Fig. 2—is fitted for dies with casings 4 inches dia. x 2⅜ inches, and bore diameters ranging from ⅝ inch down to the smallest diameters used in tungsten carbide dies, and for die opening angles from 4 to 30 degrees[x].

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Figures 3, 4 and 5 show cone reflection pictures of three tungsten carbide dies, Fig. 3 corresponding to a die with an exact conical entrance. Fig. 4 proves that this die has no exact cone and poor surface finish, and Fig. 5 gives the picture of a badly torn out die.

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After examining a great number of dies the author came to the conclusion that only very few new and re-shaped dies proved to have the best surface conditions and the prescribed opening angles. This statement may be the reason for many failures in wire drawing operations, otherwise difficult to grasp.

x for sale by W. Trurnit, Altena i.W. (Western Germany).

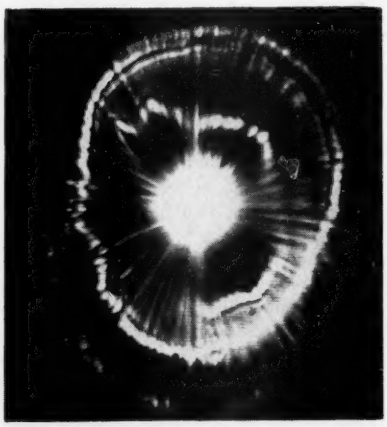

Fig. 5—Reflection Picture of a Tungsten Carbide Die heavily worn out.

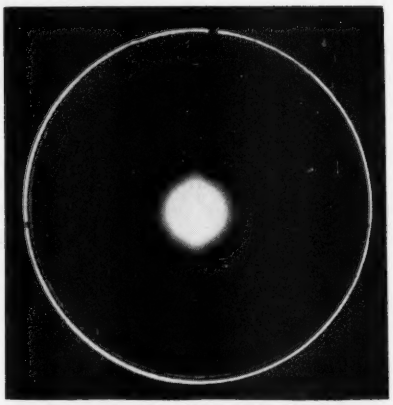

Fig. 3—Reflection Picture of a Tungsten Carbide Die with exactly conical Die Entrance of good surface condition.

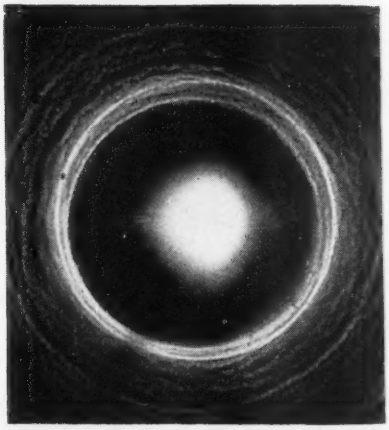

Fig. 4—Reflection Picture of a Tungsten Carbide Die with two parts of different Cone Angle in the Die Opening, and with poorly polished surface.

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The principle used in the bearing length measuring apparatus "Zetmeter" is shown in Fig. 6. Two needles with a slender cone are mounted on the same axis, and the die is brought into contact at first with the lower and then with the upper needle. As can be clearly seen from the sketch, the difference between the stroke "L_m" of the die and the distance "L_o" of the die bore diameters located on the needles is equal to the bearing length "z". This simple method was recently invented by Dr. S. Werth in Western Germany.

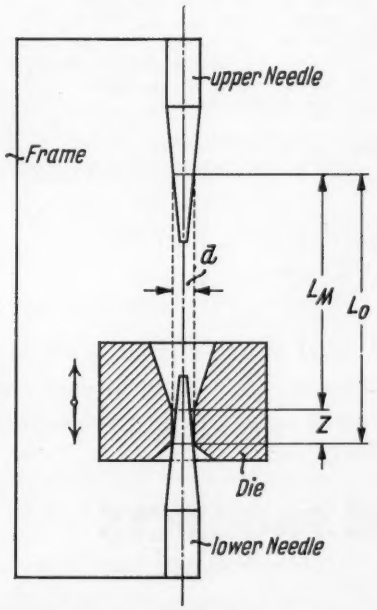

Fig. 6—Working Scheme of "Zetmeter".

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According to Fig. 7, the "Zetmeter"[o] has a lifting table, whereupon the die is placed and clamped if needed. The slide of the vertical scale index is set to the value of the die bore diameter just chequed, whilst fine setting is performed by the screw on top of the main dial micrometer. When the die touches the lower tracer needle with the bottom edge of its cylindrical bore,

o for sale by S. Werth, Düseldorf-Oberkassel (Western Germany).

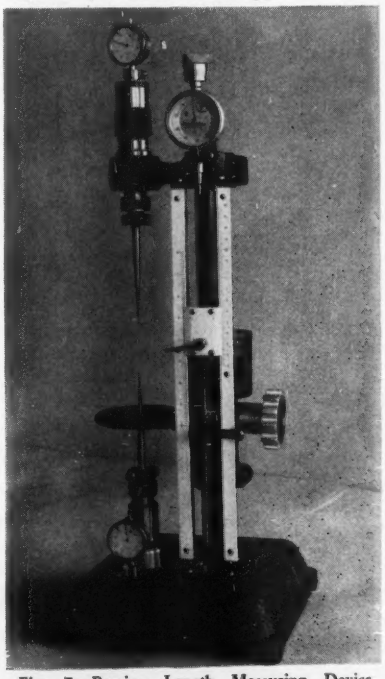

Fig. 7—Bearing Length Measuring Device "Zetmeter" (1950 Type).

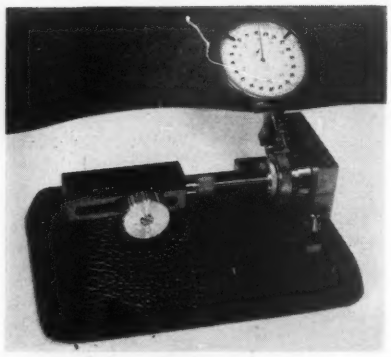

Fig. 8—Apparatus for Chequing the Cone Value of Needles for Tracing, Grinding, and the like.

the index slide is clamped to the die table. After lifting this table until the die contacts the upper needle, the bearing length can be immediately read on the main dial micrometer, with an accuracy of 0.01 mm, i.e., 0.0004 inch respectively.

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When tracing the bearing length of small diameter bores, the contact load should be not too heavy, in order to avoid elastic deformation of the needles and also of the die material. For this reason both needles are fixed in spring mountings, working in axial direction only. The two smaller dial micrometers in Fig. 7 indicate by pointing to x prescribed values of their feeler strokes that the right needle positions are reached. Fine adjustment is facilitated by micro gear in the hand wheel of the table lifting mechanism.

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Bores down to 0.08 inch diameter can be chequed very quickly by the "Zetmeter" with the above mentioned accuracy. A second scale on the vertical index serves to measure the depths; e.g., in order to determine the position of the tungsten carbide nib in the casing. Moreover, "Zetmeter" is very useful to measure the lengths of such bores which are difficult to cheque on account of sinking and countersinking.

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Accuracy of "Zetmeter" measurements very much depend on the exact manufacture of the tracer needles. The cone feeder apparatus shown in Fig. 8 immediately indicates the cone angles on its micrometer dial, after chucking the cylindrical needle shaft into the holding fixture, pushing the needle cone into contact with a gauge ring and then setting the micrometer feeler on the conical part of the needle. Slow turning of the needle also permits the reading of eccentricities of the needle cone which are reflected by movements of the dial pointer.

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Moreover, the shown device is extremely useful to cheque quickly ripping, grinding and polishing needles in the die makers shop and elsewhere, since many of the failures in the approach zone of wire drawing dies originate from the use of needles with varying cone angles.

A Pat on the Back . . .

of Significance to You.

A pat on the back is always pleasant and we are happy to say that we get many of them from our good advertisers.

As the year draws to a close and the advertising renewal contracts come in, some of our friends go out of their way to express their satisfaction in no uncertain terms.

Printed below is the text of a particularly nice letter in which is cited the experience of one advertiser who is building a highly competitive product. It is quoted because we know that what our advertising pages can do for one, they can do for another:

It is with pleasure that I am returning contract signed covering advertising in Wire and Wire Products for 1952. Without advertising in your magazine we would almost be out of business instead of going ahead in leaps and bounds. It is hard to believe that it can give one such a wide coverage; today we received an order from Norway.

We are at present busy making new types of machinery to add to our line and we are also having representatives in about ten states.

With best personal regards from the writer. I remain,

Very truly yours,

**Name furnished upon request.*

Our advertisers know what WIRE AND WIRE PRODUCTS can do for them. Concerns who are selling to our industry—and not advertising, might well be interested in such letters of commendation. Advertising pays—particularly in:

WIRE AND WIRE PRODUCTS

300 MAIN STREET • STAMFORD, CONN.

We Are Moving to Larger Quarters

On January 1, 1952, The Wire Association, The Quinn-Brown Publishing Corporation and the latter's two publications: WIRE AND WIRE PRODUCTS and the WIRE AND WIRE PRODUCTS BUYERS' GUIDE, having outgrown their present offices will move to 453 Main St., Stamford, Conn.—just two blocks East on the South side of Main Street.

The new and larger offices will serve as headquarters for the Wire Association and will house the business and editorial staff of the publications.

Our friends are cordially invited to visit us at the new address after the turn of the year.

THE STORY OF THE CONVENTION

by Edmund D. Sickels, Editor
Wire & Wire Products,
Stamford, Conn.

To provide a permanent record of each Annual Convention, a resumé of the goings-on is prepared. The papers presented at the sessions and the discussions thereof are published from October through January in Wire and Wire Products. We have tried here, without going into the subject matter of the papers, to provide a brief sketch of the Convention that will enable those who were not able to attend to secure a comprehensive picture of the many interesting activities that took place.

The 1951 Annual Convention of The Wire Association, held at the La Salle Hotel in Chicago from October 22nd through the 25th was one of extraordinary satisfaction for both those who attended it and those who were responsible for its planning.

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In the first place attendance broke all records by a wide margin—there were 605 who registered, nearly 38% more than the previous high recorded last year in Baltimore. This does not include the many others—the wives of the Conventioneers—who came to Chicago in greater numbers than heretofore, and secondly, it was most gratifying to note the substantial increase in the "non-ferrous" attendance — those who manufacture bare non-ferrous wires and insulated wire and cable. This was a very natural response to the fine non-ferrous program of technical papers the Program Committee had provided.

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To place credit where it belongs, the plaudits should go to **Ralph B. Roth,** Vice President of the Ludlow-Saylor Wire Company, General Program Committee Chairman; to **John A. Moritz,** Superintendent of Wire Mills, Keystone Steel and Wire Company, Ferrous Division Chairman; to **Dr. Bruce W. Gonser,** Research Supervisor, Battelle Memorial Institute, Non-Ferrous Division Chairman; and to their several committee members who cooperated by serving as chairmen of the various sessions. These latter committeemen were listed in the printed program published in the October issue of WIRE AND WIRE PRODUCTS.

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A total of forty-three persons from seven foreign countries were in attendance, although our thirty-six friends from Canada, New Brunswick and Nova Scotia can hardly be considered "foreign". Other countries represented were England, Wales, Belgium and India. In addition to the above, two other groups, one of five from England, Belgium, Germany, France and Sweden, here on the E.C.A.—sponsored Galvanizing Techniques Mission, and another group of fourteen on the Steel Techniques Mission, whose members came from Holland and Belgium, were present through the week. Both "mission" groups had previously attended the World Metallurgical Congress.

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Officially the Convention got under way with the opening of the registration desk at 9 a.m. o'clock on Monday. This occupied all of the morning hours, over three hundred getting their badges before midday. At 10:30 a.m. the directors met for their semi-annual business session, details of which were announced at the Annual Meeting of the Wire Association, described further along. Following the meeting, the directors, as is their custom, gave a luncheon for the program committee members and the program speakers.

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It should be remarked in passing that the new policy, inaugurated in 1950, of holding simultaneous ferrous and non-ferrous technical sessions, was followed in 1951 with striking success and is expected to be a permanent feature of future conventions.

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Monday, October 22nd
Joint Session

President Fred M. Crapo opened the first session at 2 p.m. with an address of welcome to the three hundred who attended. He said:

"Members and Guests: It is a pleasure to extend to you the cordial greetings and welcome of the officers and directors of The Wire Association at this opening of the Twenty-second Annual Convention.

You will be interested to know that our registration is the largest in our history, and includes some 60 allied friends from: Canada, New Brunswick, Nova Scotia, England, Wales, France, Belgium, Western Germany, Australia and India.

When we met a year ago, there was just being instituted a plan for international defense. To-day, this program for mobilization and readiness has advanced far beyond our expectations and the wire industry faces a challenge and many new problems in its position of vital importance to defense and war planning.

Under these circumstances, this Convention offers unusual opportunities for the further strengthening and advancement of the wire industry which inevitably has resulted from friendly discussions of production problems, technical matters, new developments, and making interesting plant inspections.

The Program Committee under the able leadership of Ralph B. Roth, General Chairman; John A. Moritz, Chairman, Ferrous Division; and Dr. Bruce W. Gonser, Chairman, Non Ferrous Division, has arranged a most interesting and well-balanced program.

A Plant Inspection Trip has been arranged for Thursday by the American Steel and Wire Company to their wire mills at Joliet, Illinois. This is greatly appreciated by all.

It is especially gratifying to note the marked growth of our Non-Ferrous Division and the obvious success of holding simultaneously, a session for each, the Ferrous and the Non-Ferrous Division.

It is hoped that our technical sessions will develop questions and lively discussions and it is intended that each one shall express his thoughts frankly and make any possible interesting contribution. Thus, we should attain the maximum success in our meetings.

Again, it is a pleasure to welcome each of you here."

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He then read a long telegram that had been received by Mr. Brown as Executive Secretary of the Wire Association just prior to the Con-

vention from **R. W. Lukens**, Chairman of the Lukens Steel Company and Chairman of the Steel Industries Scrap Mobilization Committee, on the importance of searching out dormant scrap and getting it back into channels that would make it available to steel producers.

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Ralph B. Roth, General Chairman, then took the rostrum, expressing his thanks to the committeemen and the speakers, without whose wholehearted cooperation the program could not have been arranged. Three papers followed, all of which appear in November and in this issue, December.

Tuesday, October 23rd

Technical sessions were held both in the morning and the afternoon for the ferrous and non-ferrous groups. **Fred H. Parkin** of the Parkin Chemical Company presided over the **Ferrous Section** meeting in the morning and **Tom M. Girdler, Jr.** of the Union Drawn Steel Division, Republic Steel Corporation, over that of the afternoon. **The Non-Ferrous Section** meetings in the forenoon and afternoon sessions were held under the chairmanship of **J. H. Gillett**, of Industrial Ovens, Inc., and **Joseph E. Wiltrakis** of the Western Electric Company. In the afternoon session, the second paper entitled "Cellulosic Coatings for Braided Insulated Wire", to have been presented by **William J. McGowan**, was replaced by one by **Joseph S. Hawes**, Manager, Cable & Coatings Division, New England Lacquer Company, entitled "Improvements in Cable Lacquers Through the Years". This paper was ably presented and well-received.

Wednesday, October 24th

Technical sessions were held only in the morning starting at 9:30 a.m. with **L. C. ("Red") Crewe, Jr.**, president of the Maryland Fine & Specialty Wire Company, presiding as Chairman of the **Ferrous Section.** There was presented at this meeting a paper on a new type of paper carton for nails that had been received too late to be recorded in the printed program. It was delivered by **Richard E. Oas**, Manager of Sales Promotion, Container Division, International Paper Company, Chicago. The paper is published in this, the December issue of WIRE AND WIRE PRODUCTS.

★ ★ ★

At a lively non-ferrous session, ably presided over by **Frank R. Nichols**, president of the Nichols Wire and Aluminum Company, two final papers were heard and the discussions recorded, as in all previous meetings. All such discussions will appear in January, the Convention Proceedings issue. These two Wednesday morning papers concluded the technical sessions.

The Annual Luncheon of the Wire Association

A "full-house"—and a delightfully colorful one-characterized the Annual Luncheon. **Mrs. R. S. Spengel** had arranged for orchids for the ladies who attended, which added considerably to the gaiety and picturesqueness of the occasion, further heightened by an orchestra to play the American and British national anthems and provide a background of music before the speaking began.

★ ★ ★

After the luncheon, **President Crapo** addressed the gathering, extending a welcome particularly to the ladies present. Then he presented the awards for the most meritorious papers on wire manufacture or wire fabrication during the year of 1950. The Medal Award, a Tiffany bronze plaque, was given to **Curtis Voigtlander**, Superintendent, Wire Mills, Union Wire Rope Corporation, for his paper "Borax as a Coating for Drawing High Carbon Steel Wire".

A certificate of Honorable Mention was also awarded to **William L. Wells**, Assistant Superintendent, Wire Mills, Scovill Manufacturing Company, for his paper, prepared jointly by him, **W. D. France** and **W. E. Johnson** (of the same company) on "The Production and Applications of Copper-Base Alloy Wire". Another similar certificate was presented to **Walston Chubb, Jr.**, Research Engineer, Battelle Memorial Institute, for his paper "An Investigation of the Weavability of Wire with Observations on the Defects of Wire and Wire Cloth".

★ ★ ★

Everyone was delighted by the presence of **John C. Callaghan,** one of the charter members of the Wire Association and an Officer and Director of it until his retirement from the Steel Company of Canada five years ago. Mr. Crapo called upon him for a few remarks, which proved, as always, to be delightful, witty and gracious. We were more than pleased to have John with us again.

★ ★ ★

The piece de resistance of the Annual Luncheon is the **Mordica Memorial Lecture,** an honorary lecture given each year by an outstanding member of the Wire Association to perpetuate the memory of John Mordica, it's first president and one of the men who worked most assiduously in its early struggles to get it firmly established. The crown of the honor this year had fallen upon **Sidney Rolle,** Assistant Manager of The Scomet Company, who had chosen a subject near to his heart: "The Fabricating of Copper Wire". In this scholarly presentation, Mr. Rolle traced the history of copper production and copper wire manufacture from the earliest recorded times down to its modern highspeed processing. His lecture, that will be a feature of the January issue of WIRE AND WIRE PRODUCTS, was concluded with a sound-motion picture shown by and through the courtesy of the Western Electric Company.

★ ★ ★

The Annual Meeting of The Wire Association

With a quorum present this meeting was called to order at 4 p.m. with President Crapo presiding. He called upon the Executive Secretary, **Richard E. Brown,** to read the minutes of the preceeding meeting. The report was accepted and approved. Similar action was taken on the Treasurer's report, read by Mr. Brown. A motion to approve the acts of the directors for the preceeding year was made and seconded.

★ ★ ★

Mr. Crapo then announced the appointment by the directors of various committees to serve for the coming year as follows:

Executive Committee
Fred M. Crapo
D. D. Buchanan
Ralph H. Clifford
Ralph B. Roth
Sidney Rolle

Nominating Committee for Directors
D. D. Buchanan

Paul A. Nehring
Richard E. Brown

Membership Committee

Sidney Rolle
Curtis Voigtlander
D. D. Buchanan
Carl E. Johnson
Richard E. Brown

Medal Award Committee

Tom M. Girdler, Jr.
Bruce W. Gonser
Dartrey Lewis
Curtis Voigtlander
Allan B. Dove

★ ★ ★

Other announcements, stemming from the Directors' Meeting on Monday, were: the selection of **Peter Igoe,** Treasurer of Igoe Bros., Inc., Newark, N. J. as the Mordica Memorial Lecturer for 1952; the selection of Cleveland, Ohio, for the holding of the 1952 Convention on November 10th through the 13th; the appointment of **Eber J. Hubbard** again to head the Smoker-Dinner Committee in 1952; that the retiring directors were **Leonard C. Crewe, Jr.** and **Hugh B. Carnahan;** the nomination for new directors for later election by the membership of **Tom M. Girdler, Jr.** and **William L. Wells;** the appointment of **James R. Thompson** as General Program Committee Chairman for 1952; and that a report on the new book on steel wire by **Kenneth B. Lewis** had been completely underwritten by advance orders for copies. The book, it was announced, will be ready for publication about February, 1952, the following concerns having become its sponsors by having placed advance orders for it:

Aetna-Standard Engineering Company
American Chemical Paint Company
Atlantic Steel Company
Canada Wire & Cable Company, Limited
Carboloy Company, Incorporated
Cleveland Tramrail Division of Cleveland Crane and Engineering Company
Continental Steel Corporation
The Electric Furnace Company
Firth Sterling Steel & Carbide Corporation
Wm. Glader Machine Works
Indiana Steel and Wire Company
Industrial Ovens, Incorporated
Keystone Steel and Wire Company
Micro Products Company
R. H. Miller Co. Incorporated
Morgan Construction Company
Mossberg Pressed Steel Corporation
Nehring Electrical Works
Standard Industrial Compounds Company
The Steel Company of Canada, Limited
Syncro Machine Company
The Trembicki Company
The Vaughn Machinery Company
Wean Equipment Corporation
Lee Wilson Engineering Company

★ ★ ★

President Crapo also announced the decision of the directors to hold regional meetings in 1952 as follows: in **Pittsburgh, Pa.** on **May 8th and 9th,** with **Tom M. Girdler, Jr.** as chairman and **C. Raymond Harmon** as assistant chairman; in **Los Angeles** in **June,** with **Kenneth H. Davis** as chairman; and that in New England in the Spring there was contemplated an organization meeting for the Non-Ferrous Section of the Association, with **William L. Wells** serving as chairman.

★ ★ ★

That a motion had been made and seconded extending the thanks and appreciation of the Board of Directors to all members of the program committee and to the program participants, was further reported by Mr. Crapo. At the Annual Meeting a motion also was made and seconded expressing the thanks of the membership to **Eber J. Hubbard,** to **Richard E. Brown** and to **Mrs. R. S. Spengel** for their work in arranging so successful a Convention this year.

★ ★ ★

There being no further business the meeting was adjourned.

★ ★ ★

The Stag Smoker-Dinner

Over five-hundred persons attended this merry and convivial annual affair. The bar opened at 6:30 p.m., with an orchestra and acts to entertain the boys during this get-together period. Dinner was served promptly at 7:30 o'clock, lasting approximately one hour, after which the gathering was entertained with the finest series of vaudeville acts, judging from personal observation and the general comments of those who were there, that we have ever enjoyed. That is saying a great deal, for we have had some top-flight shows in years gone by. Every single act was outstandingly fine. To **Eber J. Hubbard,** chairman of the Smoker-Dinner Entertainment Committee, we are all deeply indebted for his having arranged so uniformly good a show. As one wag remarked: "If his spools and reels are as good as his show, they must be d----d good". Thank you, Eber!

★ ★ ★

Thursday, October 25th
The Plant Inspection Trip

This day was entirely devoted to a tour of the **Joliet Works** of the **American Steel and Wire Company** at Joliet, Illinois. Greyhound busses left the hotel promptly at 10:30 a.m. for Joliet, going first to the Cantigny Post of the Veterans of Foreign Wars, where at 12 o'clock a delicious and adequate luncheon was served through the courtesy of the American Steel and Wire Company to approximately 260 persons.

★ ★ ★

At one o'clock the busses transported the group to the Joliet Works rod and wire mills, where, starting at the billet heating furnaces, the guests were guided in small groups by Company guides successively through the rod mill, the wire drawing, galvanizing, poultry netting, farm fence, barbed wire, annealing, nail, bale tie and welded fabric departments. At Joliet everything is done on a huge scale and the guests were most appreciative of this opportunity to see this well-equipped unit of American Steel and Wire's vast wire and wire product-making empire. The mills were busy, the housekeeping perfect and an atmosphere of efficient large-scale production was everywhere in evidence.

★ ★ ★

The Directors desire to take this opportunity to express their thanks publicly on behalf of the members of the Wire Association to the American Steel and Wire Company's management for the many courtesies extended to those who were privileged to make the tour.

★ ★ ★

This event concluded the Convention. The Story of the Convention would not be complete without a further word of praise to Ralph B. Roth and his two very able assistants, John A. Moritz and Dr. Bruce W. Gonser for their engineering of a Convention that will long be remembered as our biggest step forward. Nor should we fail to record our appreciation of the splendid service and cooperation of the **LaSalle Hotel's management and personnel, who contributed so much** to the smooth functioning of our Convention.

★ ★ ★

Seen and Heard at the Konvenshon

by "Reporter" Fred H. Parkin
Parkin Chemical Company
Pittsburgh, Penna.

CONVENTION, Kon-ven'-shon, n.:—The act of coming together, a meeting, an assembly of delegates for consulting on important concerns, etc.

★ ★ ★

ASOCSIATION, as-so'-shi-a-shon, n.:—A society, a union wherein members are united by mutual interests or for a common purpose, etc.

★ ★ ★

WIRE, wir, n.:—Something you pull through a die and hope for the best!

★ ★ ★

The combination of these three definitions, many thanks to Webster of course, equals the **Wire Association Convention.** Another extremely successful "gathering of the clan" was accomplished a few months back in Chicago. The time was October 22nd thru the 25th in the famed LaSalle Hotel.

★ ★ ★

About 600 members and guests of the Wire Association—to be exact, 605, registered for this four day soiree of technical sessions, fraternizing, renewing old friendships, making new ones. Extra curricular activities, such as community singing, story telling, skipping the usual "bed check", were indeed popular also. The Yohgurt parties were great! Not since Mrs. O'Leary's cow kicked over the lantern and set up such a rumpus has Chicago seen more wire pullers and peddlers in one place at one time—and all enjoying themselves so much. It was a record crowd, best in the history of the Association.

★ ★ ★

President Fred Crapo handled his end of the show with his usual excellent aplomb. He was ably reinforced by two fine chairmen, **John Moritz** (Ferrous Division) and **Bruce Gonser** (Non-ferrous Division).

★ ★ ★

Moritz, the Elder, had somehow wangled the services of **Leonard Crewe** from Cockeysville; **Girdler,** the Younger, from Beaver Falls; and the younger **Parkin Brother,** to head up the technical sessions. A chairman's life during the technical meeting is indeed a soft touch. He gets the speaker on his feet—lets the speaker parry with the audience afterwards on a pseudo quiz show—relaxes and is happy that he is not on the "hot spot." Over in the Nonferrous Meetings three capable gentlemen; namely, **Joe Wiltrakis** from Western Electric; **Ken Gillett** (Industrial Ovens); and **Frank Nichols** of Davenport fame, held down the fort during the sessions.

★ ★ ★

Whilst these sessions were being carried on, a couple of lads named Ed **(Sickels and Donnellan)** scampered around the halls and corriders making sure all was correct. They were! And when they weren't, then two other members of this famed quartet—**Ruth Spengel** and **Dick Brown**—soon saw to it that a hasty correction was made. A smooth running, satisfactory convention—thanks to these four from Stamford, Conn., was the end result.

★ ★ ★

Incidentally, you'll find an interesting account of the convention in this same issue by a professional writer (Ed Sickels). Any resemblance between his tale and mine is purely coincidental. This stuff is strictly amateur. Someone had the gaul to suggest my "Tribute to a Man Named McGowan" on the Atlanta Regional Convention was the work of a ghost writer. No self-respecting ghost would have touched that kind of stuff! ! !

★ ★ ★

Then there was the usual fine luncheon on Wednesday of that week to which the lovely ladies were cordially invited. Don't believe there was an accurate count on the number of wives and sons on hand, but it must have numbered in the hundreds.

★ ★ ★

Presentation for meritorious efforts in 1950 found the recipients to be **Curt Voigtlander** from Kansas City, **W. L. Wells** from Waterbury, Conn., and **Walston Chubb, Jr.** from Columbus, Ohio.

★ ★ ★

Wednesday evening found the wives properly dismissed and relegated to some of Chicago's better eating parlors while 503 men attended the annual stag smoker. A fine dinner was placed before us—and afterwards—one of the biggest and best floor shows ever to come down the Pike came on. Believe me, when our good friend, **Eber Hubbard** of a local spool company of the same name, gets into this entertainment business, he comes up with the very best! Show lasted almost two hours, included some of the finest singing, comedians, dancing and somebody's sister—we ever did see. A memo to Mr. Hubbard: If you ever are hard pressed for entertainers and cannot find same, why not check the Association roll call. I'll put **Gordy Vaughn** of machinery fame and **Barney Rider** from north of the Border up against the best, and they'll steal the show any day. Who makes up these jokes anyhow, and how do they remember so many? These two lads put on a three hour show one afternoon for the benefit of the **Richards Brothers'** (Apex Alk Co.) friends. It was tops!

★ ★ ★

Having cleared away the sessions,

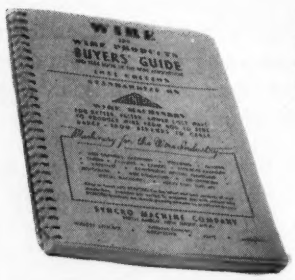
(*Please turn to page* 1181)

NOTICE TO ADVERTISERS • • •

on the 1952 EDITION of the WIRE and WIRE PRODUCTS **BUYERS' GUIDE**

AND YEAR BOOK OF THE WIRE ASSOCIATION

Advertising Forms Close February 15, 1952



Every concern with whom you do business has occasion during the year to refer to this Directory for information on sources of supply for machinery, equipment and supplies used by them.

Your advertising in the BUYERS' GUIDE will help such concerns to decide on their needs in your favor, quickly and easily.

The BUYER' GUIDE contains over 30,000 references conveniently classified under appropriate headings. Key men who do the specifying and buying in the wire industry receive copies of and make regular use of this important and useful buyers' reference book. For suppliers to and in the wire industry advertising is a *"must"* service to your prospective customers.

Please give *immediate* consideration to your 1952 BUYERS' GUIDE advertising.

What we shall need is: (1) your correct listings on all your products of interest to the wire industry and (2) your order showing the space that will be required.

NOTE: Your name and products will be listed without charge under proper headings if you furnish them. Advertisers will have their names set in bold face type, however, without extra charge. Your advertising will provide more information than a listing and helps buyers to make proper decisions.

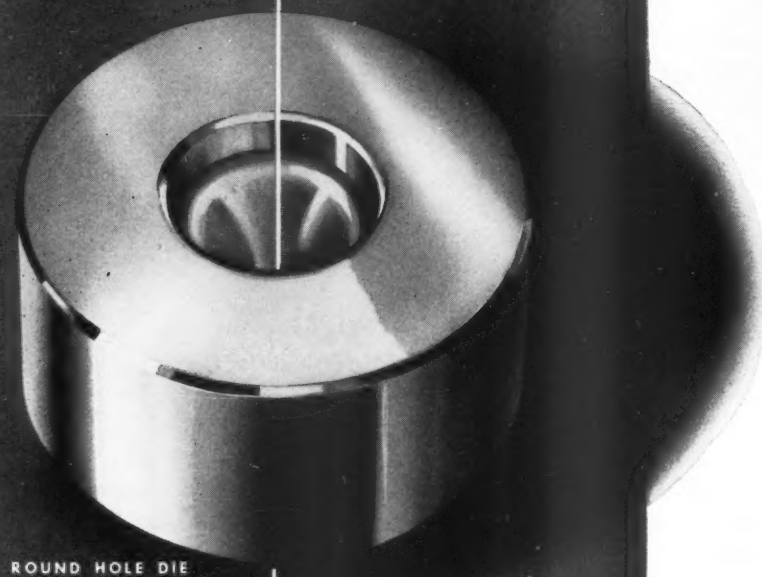
Write today for advertising rates.

WIRE AND WIRE PRODUCTS

J. EDWARD DONNELLAN, VICE PRESIDENT

300 MAIN STREET **STAMFORD, CONN.**

5 ways to get bonus



ROUND HOLE DIE

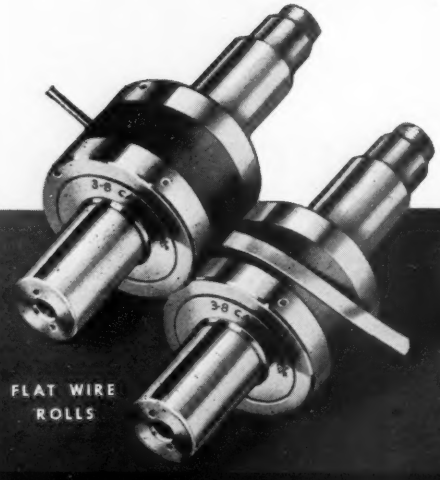
1 Specify Carboloy Wire Dies

Naturally, to get bonus tonnage from carbide wire dies, you must specify dies of Carboloy Cemented Carbide, hardest metal made by man.

Then, back up your workers, bring your die operations to a new high by drawing on any or all of our many services designed to help you take advantage of the superb quality, unmatched strength, and perfected design of Carboloy Wire Dies.

4 Send tough problems to your Carboloy Die Service Center

Turn over those cost-boosting, vexing die service and finishing problems to your nearest Carboloy Die Service Center. Fast service puts dies back in production quickly, keeps output rolling. CHICAGO 7, ILL., 844 S. Canal St., Telephone: Harrison 7-2825; DETROIT 32, MICH., 11177 E. 8 Mile Road, Telephone: Jefferson 6-9100; PITTSBURGH 19, PA., 704 Second Ave., Telephone: Court 1-4880.



FLAT WIRE ROLLS

"Carboloy" is the trademark for the products of Carboloy Department of General Electric Company

Specify CARBOLOY

CEMENTED CARBIDE WIRE, BAR, AND TUBE DRAWING DIES

onnage from your carbide dies

(There is at least one you can use)

2 Train your men in our school

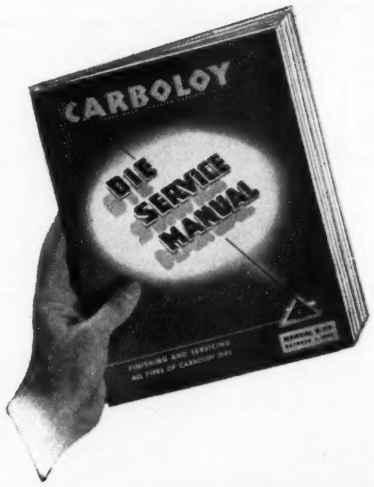
Send your key men to our tuition-free Customer Training School for a three- or five-day period. They'll learn the very latest in carbide die applications, in maintenance methods, die layout, and the all-important die room operation direct from experts in the field. They'll return with the newest in money-saving, production-boosting knowledge that will pay off instantly — and for years to come.

3 Utilize the services of your Carboloy field engineer

A word from you, and he becomes your timesaving trouble shooter. Through him, you can concentrate the combined knowledge and skill of Carboloy engineering, research and Die Service Centers on any die layout, servicing, or performance problem you may encounter.

5 Improve die room operations with this FREE technical data

Carboloy Die Service Manual D-119, forty-eight illustrated pages on die finishing techniques that will minimize mistakes and finishing time. Sixteen additional pages give you practical advice on improved die room service, efficient layout and operation, on supplies and equipment, and on all other phases of die handling.



CARBOLOY

DEPARTMENT OF GENERAL ELECTRIC COMPANY

11171 E. 8 MILE STREET • DETROIT 32, MICHIGAN

Government Wire Production Information

Lead and Zinc Products Price Adjustments

The Office of Price Stabilization has authorized ceiling price adjustments for **certain** basic metallic products containing lead and zinc so as to reflect the recent two cents a pound ceiling price increase for lead and zinc.

★ ★ ★

The action is covered by Supplementary Regulation 76 to the General Ceiling Price Regulation (GCPR), effective October 24th, and permits sellers under GCPR to adjust their ceiling prices by two cents a pound for the lead and zinc content used in the products listed. These products are:

Lead sheet, foil, wire, pipe and other extruded, rolled or drawn lead products which contain not more than one percent tin.
Lead anodes and shot.
Zinc sheet, plate, rod, foil, wire and other rolled or drawn zinc products.
Zinc base alloys containing not less than 90 percent zinc and not more than one percent tin.
Zinc anodes and shot.

★ ★ ★

The regulation also permits galvanizers, who perform the service of galvanizing materials or products owned by others, to increase their ceiling prices under GCPR by two cents per pound of zinc deposited on the product galvanized.

★ ★ ★

The products listed in the regulation issued recently do not include all the products which contain a high percentage of lead and zinc, but cover only the basic metallic products whose ceiling prices are presently determined under GCPR.

★ ★ ★

Copper Wire Mills Ask NPA for Better Balance Between Allotments and Supply

The Wire and Cable Industry Advisory Committee recommended on October 31st that NPA make greater efforts to bring allotments of controlled copper materials into better balance with available supplies.

★ ★ ★

Meeting with NPA officials, the committee urged that no allowance be made by NPA for attrition factors in making controlled materials allotments. Such action, they said, would not only permit more effective use of available materials, but would also help to prevent creation of artificial shortages. NPA indicated that the proposal would be studied further.

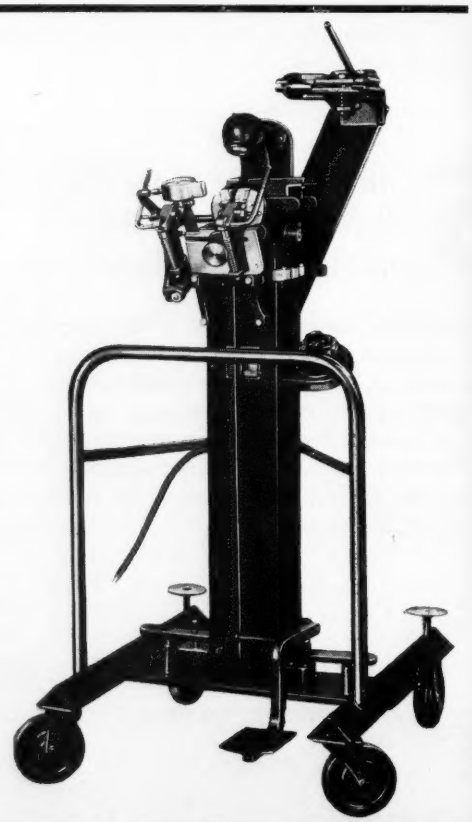
★ ★ ★

MICROMETER PRECISION — MICRO-WELD — TRADE MARK REGISTERED

MODELS J-3-C and J-4-C AUTOMATIC MICRO-WELD BUTT WELDERS

These welders are used for welding COPPER, ALUMINUM, and other non-ferrous wire ranging in size from .031" to .128" diameter.

The welding cycle on these welders is automatically controlled and completed by a single downward stroke of the foot pedal, which include the clamping of the wire being welded, contacting the welding switch, and applying the upset pressure on the weld. All units are equipped with annealing dies, filing vise, light, extension cord, and mounted on a 4-wheel truck.



MICRO PRODUCTS CO.,
20 NO. WACKER DR., CHICAGO 6, ILL.
Telephone: STATE 2-7468

Industry spokesmen suggested that advance allotments of controlled materials be restricted to one quarter only. Under the present system, they said, mills are frequently required to rearrange their production schedules. A restriction of the type proposed would permit manufacturers to develop firmer production schedules, members said.

★ ★ ★

The committee called attention to the fact that in the past there has been insufficient coordination between allotments of controlled materials and allocations of components, and they urged that this situation be corrected.

★ ★ ★

An NPA spokesman said plans are now being made to synchronize allotments of controlled materials with allocations of components.

★ ★ ★

Although some projects are under way to increase domestic copper production, their effects will not be felt for several years, NPA said.

★ ★ ★

Allocations of copper raw materials for November have been cut 10% to provide a reserve to meet requirements of the department of Defense and the Atomic Energy Commission, NPA disclosed.

★ ★ ★

The committee strongly endorsed the controlled materials plan as being an effective instrument in channeling available supplies of copper materials to the industry.

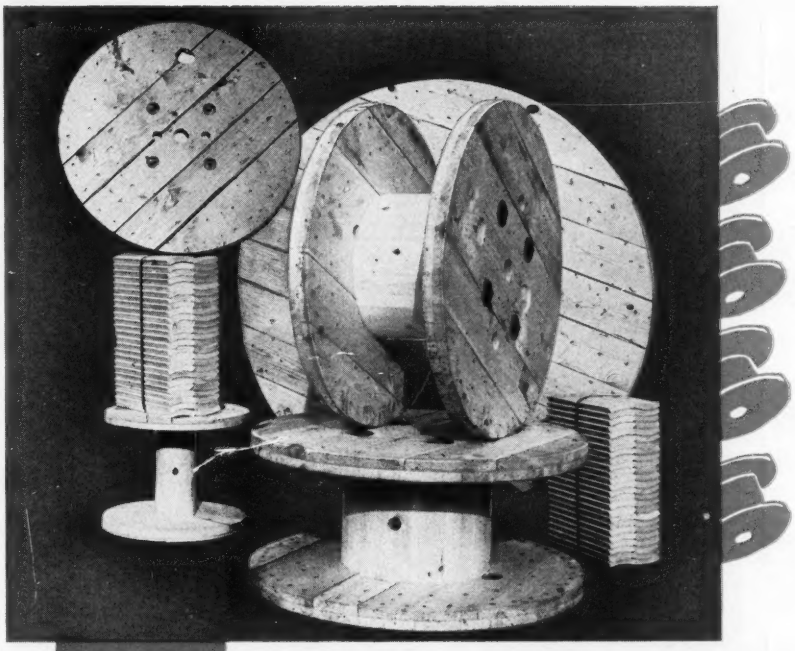
★ ★ ★

In commenting on the outlook for aluminum and other raw materials, NPA said that arrangements are being made to make available to the industry a certain quantity of rods to supplement current production of copper wire.

★ ★ ★

The committee was generally of the opinion that attention should be paid to historical production patterns in allocating aluminum to the wire industry, and that some consideration should be given to new users in line with their requirements and facilities.

★ ★ ★



FOR CABLE ROPE WIRE

ALL SIZES AND TYPES.
SHIPPING AND SHOP REELS.

WOOD REELS

RETURNABLE AND NON-RETURNABLE

BRIDGE REELS are LOW IN COST, RUGGED in CONSTRUCTION for SEVERE HANDLING, and WELL MADE.

Our trucks will deliver reels to your door if you are within 200 miles of Hazardville. Fast freight service will reach points as far away as St. Louis in 4 or 5 days. Even better deliveries to points like Buffalo and Cleveland. If shipped via fast LCL rail service, reels will be delivered to your door in some cities at no extra cost.
Look into BRIDGE'S unique distribution service. Let us show you what we can do for you.

SIZES: FROM 12" to 96" IN DIAMETER

ALSO, REEL HEADS FOR STEEL DRUMS

Our streamlined production methods give you reels of the best possible construction at costs that represent real savings. This, plus our unique distribution system, offers you a dependable, efficient source of supply for your reels.

Reels are furnished knocked down or assembled. Standard sizes in stock, special reels made to your specifications on short notice.

TRY BRIDGE REELS for quality and service.

BRIDGE
MANUFACTURING CO.
HAZARDVILLE, CONN.
Phone Thompsonville. 3375

Let us quote on your reel needs.

JOHNSON
STEEL
& WIRE
CO., INC.
1926-1951
QUALITY WIRE • STANDARD OF THE INDUSTRY
FOR SPECIALTY WIRES
---A SPECIALTY MILL
"JOHNSON Sets the Standard of the Industry"
Successful fabrication of wire into the products you manufacture demands absolute uniformity of prescribed physical and metallurgical properties which can be accomplished only by the use of "Special" equipment—"Special skills—and a conscious endeavor to make the best — better.
A quarter-century of progress has taught us many new and better ways to produce "custom-made" specialty wires.
JOHNSON
JOHNSON STEEL AND WIRE COMPANY, INC.
WORCESTER 1, MASS.
New York Philadelphia Cleveland Detroit Akron Chicago
Atlanta Houston Tulsa Los Angeles Toronto

Publication on Plastic Deformation of Metals

Progress in understanding how the atomic arrangements within a metal determine its structural properties is summarized in a symposium on the "Plastic Deformation of Crystalline Solids" now available to the public, the Office of Technical Services of the U. S. Department of Commerce has announced.

★ ★ ★

Sponsored jointly by the Carnegie Institute of Technology, and the Office of Naval Research, the symposium consists of 19 papers by authorities in special areas of plastic deformation of crystalline materials.

★ ★ ★

Knowing the regular atomic arrangements within crystals, and what it takes to push individual atoms out of these regular arrangements, will enable engineers to develop better, stronger, crystalline materials, especially metals. According to the publication, advances to date are such that "if research in this field continues at the present rate, we shall have an understanding of most of the basic phenomena of plastic deformation within five or ten years". This means that in about ten years engineers may be able to "design" the kind of metal they want working out in advance the arrangement of atoms required in the metal's crystals.

★ ★ ★

PB 104 604, Plastic Deformation of Crystalline Solids, 226 pages including photographs, diagrams and graphs sells for $3.50 a copy. Orders should be addressed to the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., accompanied by check or money order payable to the Treasurer of the United States.

★ ★ ★

Polyvinyl Chloride Resins

Manufacturers' ceiling prices for polyvinyl chloride resins—used to make such plastic products as table cloths, shower curtains, wire insulation, raincoats, shoes, phonograph records, food containers and upholstery materials—will continue at

the levels prevailing under the General Ceiling Price Regulation, GCPR, the **Office of Price Stabilization** announced recently.

★ ★ ★

Provision for maintaining the ceiling prices at which manufacturers were frozen on January 26, 1951, is contained in Amendment 30 to CPR 22, the Manufacturers' General Ceiling Price Regulation, effective October 15, 1951.

★ ★ ★

The new amendment merely adds polyvinyl chloride resins to the list of commodities in Appendix A of CPR 22 which are excluded from control of CPR 22, thereby leaving polyvinyl chloride resins under GCPR.

★ ★ ★

New NPA Order—M-86—Covers Distribution of Copper Wire Mill Products

This order describes the manner in which copper mill products may be procured by jobbers or warehousemen to maintain inventories, based on the base period starting January 1, 1950, or some comparable fiscal year period.

★ ★ ★

"**Copper** wire mill product" means bare wire, insulated wire and cable whatever the outer protective coverings may be, and uninsulated wire and cable, where the conductors are made from copper, copper-base alloy, or copper-clad steel containing over 20% copper by weight. All copper wire mill products should be measured in terms of pounds of copper content.

★ ★ ★

"**Copper** wire mill" means any person who produces copper wire mill products.

★ ★ ★

The purpose of this order is to provide for the maintenance of minimum reasonable inventories by distributors of copper wire mill products. It describes how orders for copper wire mill products shall be accepted and filled by distributors and how such shipments shall be replaced by copper wire mills. It authorizes distributors to place authorized controlled material orders

Such reels, of **NARCO** construction, combine **ECONOMY** with **SERVICE.**

They'll give three times as many trips and require no repairs. They cost only an average of 50% more per reel, yet cut your reel bills up to 300%.

Yes, we also build all-wood reels—any size from 12" in diameter up. Metal Bound Reels made in 12" through 48" diameters.

Reels are furnished assembled or knocked down, as you prefer. Reel heads for steel drums.

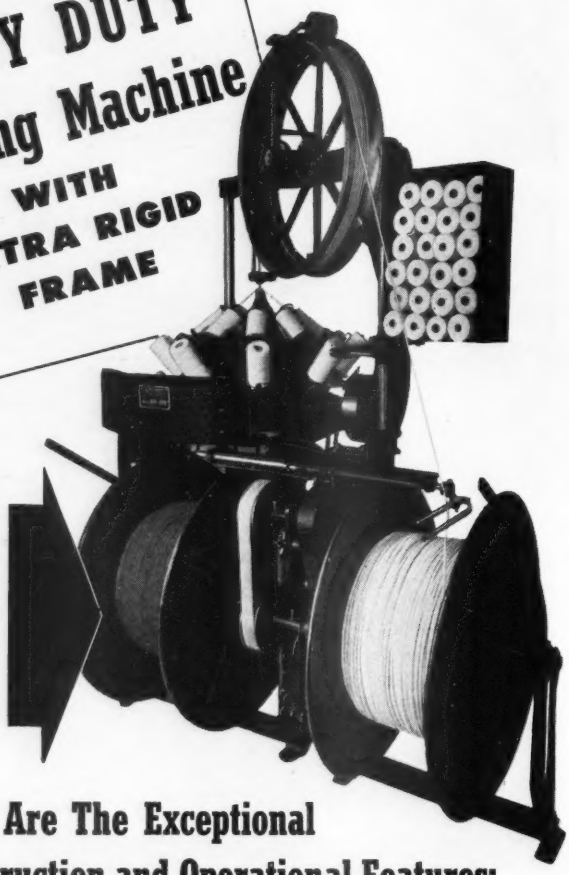
If you are economy-minded and quality-conscious, you will want NARCO METAL BOUND REELS.

May we quote you on your REEL REQUIREMENTS?

North Anson Reel Co.

TELEPHONE MADISON 187-2 NORTH ANSON, MAINE

16 CARRIER HEAVY DUTY Braiding Machine WITH EXTRA RIGID FRAME



Combines the advantages of a 24 carrier side delivery braider and proved economy of 16 carrier head.

Especially designed for manufacture of non-metallic, service entrance, metal shielding and other types of material.

Here Are The Exceptional Construction and Operational Features:

- A 16 carrier head equipped with a 13/16″ diameter beater opening on a 24 carrier frame.
- Aids in windup of finished product onto the reels. A more efficient windup of finished product on reels, as with 24 carrier braider.
- Flat belt friction wheels windup with foot treadle and adjustable tension spring has proved most practical.
- Reel tension can be increased or decreased by operation of foot treadle.
- Large diameter of 24 take-up wheel requires less tension for bending larger cores or solid wire.
- This braider can be furnished to use reels up to 36″ diameter x 22″ outside width.
- Supply packages: 4″ traverse, 2 11/16″ diameter on upper carriers; 5″ traverse, 2 11/16″ diameter on the lower supply carriers.

WARDWELL
BRAIDING MACHINE CO.
Central Falls
Rhode Island, U. S. A.
Representatives for Europe, British Colonies and Dependencies
JAMES MACKIE & SONS, LTD., BELFAST, IRELAND

within certain limitations, sets forth limitations, or on the required acceptance of such orders by copper wire mills or other distributors and revokes the authority of distributors to place orders certified under Direction 1 to NPA Order M-11 or to receive shipments of material so ordered.

★ ★ ★

Any order for copper wire mill products, placed by a distributor with a copper wire mill or another distributor and bearing the allotment symbol X-6 pursuant to this order, shall contain a certification in substantially the following form: "Certified under CMP Regulation No. 1 and NPA Order M-86." This certification shall be signed manually or as provided in NPA Regulation 2 and shall constitute a representation to the supplier and to NPA that the purchaser is authorized to place an authorized controlled material order under the provisions of this order to obtain the material covered by the delivery order.

★ ★ ★

The order became effective on Oct. 5, 1951.

★ ★ ★

Giant Looms Weave Wire in Australia

The equipment of a leading Australian company, engaged in the manufacture of woven wire products for industry, includes a giant weaving loom which weighs 25 tons, said to be the largest automatic weaving loom in Australia.

★ ★ ★

The manufacturing company, Melbourne Wire Works of Richmond, Victoria, uses the machine for weaving heavy mesh up to two inches, with 5/16-inch diameter wire. It is equipped with special overhead gear to remove the rolls of the woven wire.

★ ★ ★

Another Melbourne company, Greer and Ashburner, makes an extensive range of woven wire products, producing also very fine wire gauze, up to 120 spaces per inch.

★ ★ ★

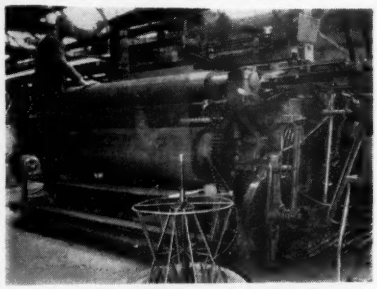
Although Australian manufacturers have experienced a shortage in the supply of basic materials, sections of the active industry have been able to meet limited export

orders, and a considerable quantity of high grade products are now finding markets in New Zealand.

★ ★ ★

The Melbourne Wire Works is one of these exporters, and the company's range of manufacturing covers an extensive line of goods which include steel wire, woven wire, screens, mesh, baskets, trays and similar products and brass conveyor belts.

★ ★ ★



Giant Australian Weaving Loom * * *

Wire is also used successfully in Australia for laying drying floors, and the Melbourne company has made these floors for local and overseas factories handling tobacco, chicory, malt, glue and copra.

★ ★ ★

Australia formerly imported wire screens, which are used in mining operations, but investigations showed that the locally made screens at Richmond were superior, mainly because of the adoption by the company of high manganese-content steel in their manufacture. The company has also been supplying mines in the State of Western Australia with Australian-made battery gratings, which are claimed to be cheaper and more durable than screens imported from overseas.

★ ★ ★

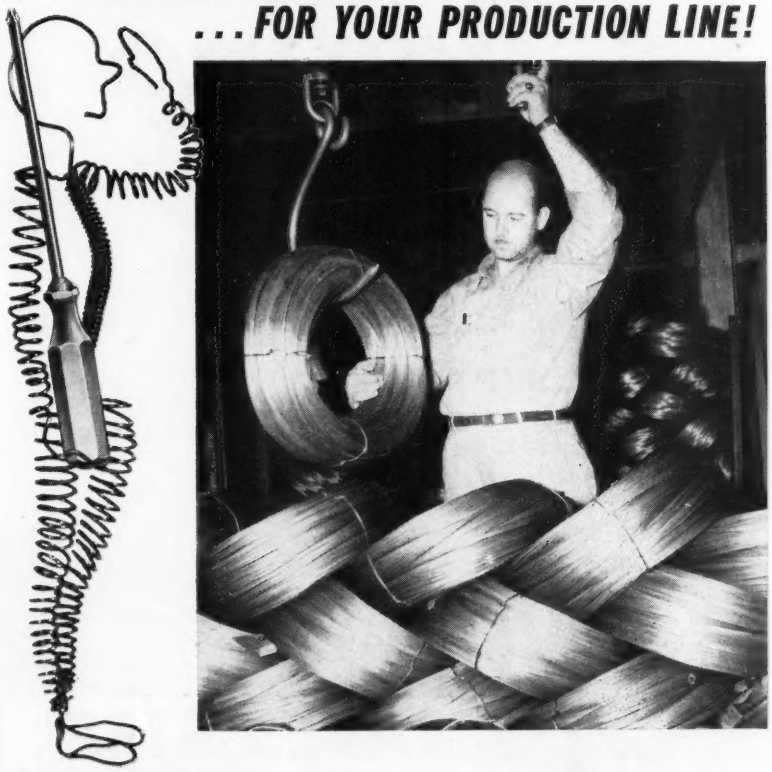
The enterprise has been established for 99 years and is claimed to be the largest wire works and weaving plant in Australia. Its equipment, a considerable portion of which is made in its own machine shop, is spread over sections like the main weaving mill and machine shop.

★ ★ ★

The looms in the mill are of both heavy and medium type. A battery of light looms, for fine mesh screening, was built in the company's workshops. These looms embody im-

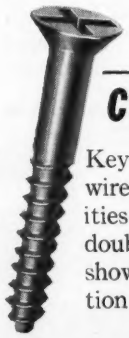
"AMMUNITION"

...FOR YOUR PRODUCTION LINE!



KEYSTONE Wire

Men on the production line
. . . as on the battle line . . .
must have good ammunition if they are to reach their objective. Cold heading stock for the manufacture of screws is a "specialty" in which Keystone excels. When a shipment of Keystone wire arrives at your plant you may be sure it carries every up-to-the-minute metallurgical refinement for its intended job.



"SPECIAL PROCESSED"
COLD HEADING WIRE

Keystone's "special processed" cold heading wire has uniform upsetting and forming qualities plus excellent flow properties which often double plug and die life. Production reports show less waste, fewer rejects, reduced inspection time and a higher quality finished product.

More SCRAP today... More STEEL tomorrow!

Keystone Steel & Wire Company
PEORIA, ILLINOIS

Efficient Pickling with . . .

Rodine®

PICKLING ACID INHIBITORS

Use RODINE in sulfuric and muriatic acid baths for improved pickling and increased production.

In straight line pickling of wire, rod and tubing, RODINE makes available more metal for drawing by protecting steel from acid attack. In batch pickling of sheet steel, RODINE improves the surface. In rapid, continuous strip pickling, RODINE not only saves acid and metal, but also prevents over-pickling during line shutdowns.

Now, more than ever, it is cheaper to pickle with RODINE than without it.

"RODINE" meets Government Specification No. U.S.N. 51-I-2.

Write for descriptive folder on RODINE Pickling Acid Inhibitors.

AMERICAN CHEMICAL PAINT COMPANY

AMBLER, PENNA.

provements and refinements which make them superior in their operation in the production of light, fine and coarse mesh, from 10 to 200 wires to the inch. In the fine meshes beyond 60, the metals used are bronze, stainless steel and monel. A specially designed loom for the manufacture of screens out of high carbon and manganese steel wire is also installed.

★ ★ ★

Wire Association Clock Wound for Another Year

The stately 400-day clock presented to the Wire Association by its British members in October, 1948, at the Annual Convention in Pittsburgh was wound this year at 12:23 o'clock on November 5th by **Dr. Thomas Emmerson,** Director of Research, Nettlefold Research Laboratories of Guest, Keen and Nettlefords, Ltd's Manor Works, Wolverhampton, England.

★ ★ ★

Dr. Emmerson performed the annual winding in the presence of **Mrs. R. S. Spengel,** Assistant Executive Secretary of the Wire Association, **Edmund D. Sickels,** Editor of Wire and Wire Products and **F. D. Bridge** and **Gordon H. Townend,** both research engineers for the same company at the Research Laboratory of which Dr. Emmerson is the Director.

★ ★ ★

Following the ceremony the group enjoyed a pleasant luncheon prior to the return of our guests to New York City to prepare for their departure for England. They had been in this country for a period of six weeks, attending among other things, the World Metallurgical Congress.

★ ★ ★

Aluminum Company Reports

Aluminum Company of America and subsidiaries reported recently sales and operating revenues of $404,685,851 for the 9 months ended September 30, 1951. Consolidated net income after taxes for this period was $30,750,535. After providing for dividends on preferred stock the net income is equal to $5.91 per share on the 4,890,733 shares of common stock outstanding.

★ ★ ★

Outstanding Personalities of the Wire Industry

Rodich Promoted by G.E.

William L. Rodich has been promoted to assistant general manager of the Laminated and Insulating Products Department of **General Electric's Chemical Division** in Coshocton, Ohio, it was announced by **H. K. Collins,** general manager of the department.

★ ★ ★

A native of Brooklyn, New York, Mr. Rodich graduated in 1939 from Brooklyn Polytechnic Institute with a B.S. in chemical engineering. Prior to his coming to General Electric in 1950, he was superintendent of manufacturing for S. B. Penick and Company and was affiliated with Merck and Company and the Winthrop Chemical. In June of 1950 he was named manufacturing manager of the Chemical Materials Department and held that position until his recent appointment.

★ ★ ★

National Electric Products Acquires Plant in Jersey

National Electric Products Corp., Pittsburgh, Pa., has purchased a million-dollar factory in Elizabeth, N. J. It will immediately start to equip the plant with more than two million dollars' worth of machinery for the manufacture of electrical roughing-in materials.

★ ★ ★

In making this announcement, **W. C. Robinson, Sr.,** president, said the new plant, on the main line of the Pennsylvania Railroad, was purchased from Standard Tool & Mfg. Co., Arlington, N. J.

★ ★ ★

National Electric is the largest maker of electrical roughing-in materials in the United States. It employs 2,000 in a large plant at Ambridge, Pa., in the Pittsburgh industrial district, and since 1948 has operated a factory at Torrance, Calif.

★ ★ ★

Mr. Robinson indicated that the Company's first plant on the Atlantic Seaboard would initially fabricate steel into rigid conduit, electric metallic tubing, busway, switch boxes and electrical connectors. The Company plans to make several new products in the new factory.

★ ★ ★

Copperweld Buys Flexo

Purchase of Flexo Wire Co. Inc., Oswego, N. Y., has been announced by **Copperweld Steel Co.,** Glassport, Pa., which will operate Flexo as a wholly owned subsidiary.

★ ★ ★

Flexo has been a producer of small and fine sizes of Copperweld, copper and bronze wires and cables with a capacity of more than 500,000 pounds a month. Copperweld

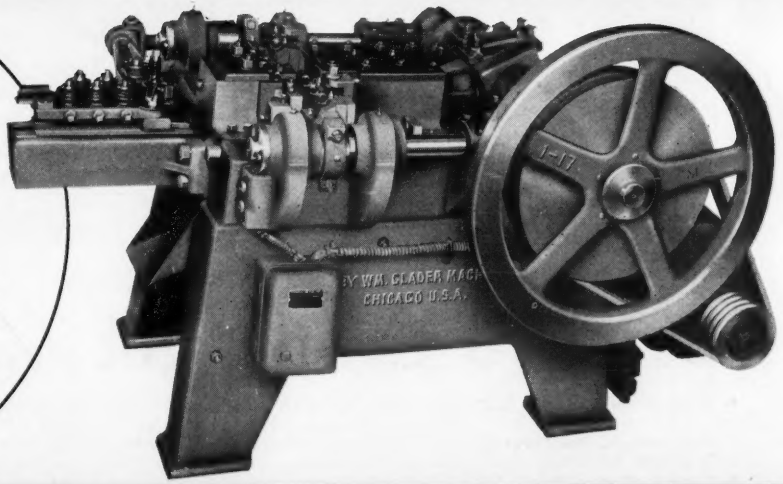
GLADER

HIGH SPEED WIRE NAIL MACHINES

HIGH TONNAGE OUTPUT—LOW MAINTENANCE COST

You can take care of increased production schedules and better product demands with these machines of established reputation.

For 55 years GLADER MACHINES have been giving HIGH QUALITY, LOW COST nail production.



Wm. Glader Machine Works 210 N. Racine Avenue Chicago 7, Illinois

Export Dept.: 122 E. 42nd Street, New York 17, N. Y.

(ILLUSTRATED)
42" x 20" x 21"—(4000# cap.)

HEAVY DUTY

BREAK-DOWN REELS

1000#
2000#
4000#
} capacities

Rugged Design including patented DURO-CURL rim, and many other features necessary to provide the *Strength* and *Durability* needed for continued successful performance.

Also complete line of sizes of Modern High Speed Wire Drawing NO-CREV Spools and Reels for both fine and intermediate size wire.

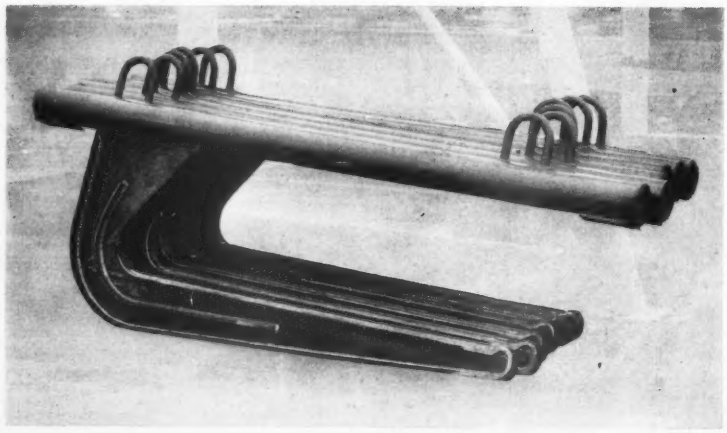
MOSSBERG PRESSED STEEL CORP.

18 WEST STREET

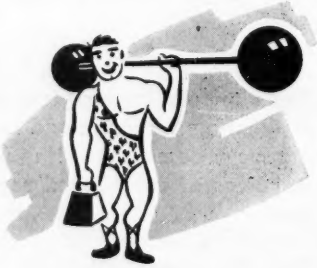
ATTLEBORO, MASSACHUSETTS, U.S.A.

Telephone
Attleboro 1-0847 & 1-0848

James Day (Machinery), Ltd., 28 Maddox Street, London, W. I. England



designed for **HEAVY-DUTY** service . . .



WELDCO Lightweight *Hairpin* Hooks

● These Weldco lightweight Monel pickling hooks are now in use in a New York wire mill, where they replaced bulky, old-style equipment. The hooks are 10' 8" long, and handle up to 3,000 pounds each; they're so corrosion-resistant that, although they are used constantly in hot 7½% sulphuric acid, they outlast heavy cast hooks 2 to 3 times.

Wire mills throughout the country prefer Weldco hairpin hooks because of their lightweight, toughness, corrosion-resistance, and long service life.

Why not find out what these economical, heavy-duty pickling hooks can do for your plant? Write, phone, or wire us today.

THE YOUNGSTOWN WELDING & ENGINEERING COMPANY

OAKWOOD AVENUE YOUNGSTOWN 9, OHIO

will use Flexo's production facilities for immediate production of small and fine sizes of copper-saving Copperweld wires and cables for the electronics and electrical appliance industries, but Flexo will continue to produce certain sizes and types of copper and bronze wires and cables made formerly.

★ ★ ★

Copperweld's action in acquiring Flexo's business is indicative of growing interest in Copperweld wire as a copper-saving alternate for copper in leads for condensers and resistors, hook-up wire and power cords for radio and television sets.

★ ★ ★

Northwestern Steel Names New Vice President

Charles H. Cecil was appointed vice president of **Northwestern Steel & Wire Co.**, Sterling, Ill. He formerly was with Bethlehem Steel Co., serving first in the operating department and later in the sales department.

Donald A. King Joins Pennsalt's Detroit Sales Staff

Donald A. King has joined **Pennsylvania Salt Manufacturing Company's** sales-service organization in the industrial chemicals department, it was announced by Donald Macfarlan, Jr., district sales manager.

★ ★ ★

Mr. King will make his headquarters at the company's sales office in Detroit and has been assigned to the territory in that area. A native of River Rouge, Mich., he is a graduate of Michigan State College, where he earned his B.S. degree in chemistry.

★ ★ ★

Bremner Advanced by Sheet & Tube

Robert P. Bremner has been appointed assistant to the vice-president-operations, **Youngstown Sheet & Tube Co.**, Youngstown.

Votta Appointed Chief Engineer by Hunter Spring Co.

Frank A. Votta, Jr., has just been appointed Chief Engineer of the **Hunter Spring Company**, Lansdale, Pa. Votta, associated with the company since 1941, has been Engineer in Charge of Design in Hunter's Neg'ator Division for the last two and one-half years.

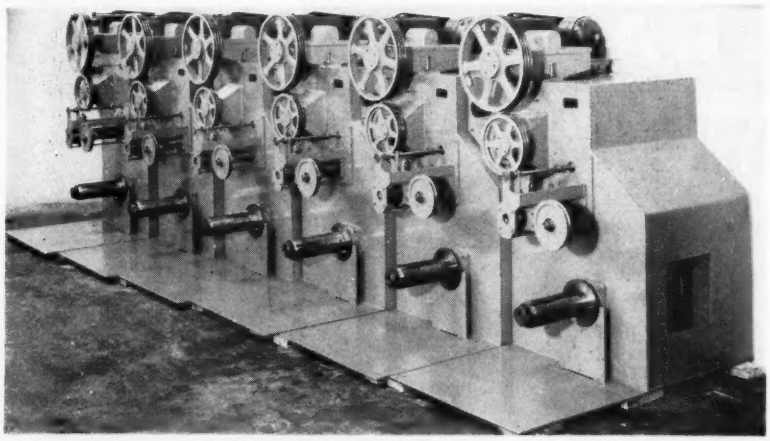
★ ★ ★

Votta will head engineering, design and research activities in all phases of the company's operation except the Neg'ator Division. Engineering problems in the development of new manufacturing processes and the improvement of present equipment and techniques will also be his responsibility.

★ ★ ★

Takes Charge of Sales for R. I. Insulated Wire

Paul Kenner, executive vice president of the **Rhode Island Insulated Wire Company**, Providence, announces the appointment of **Alan B. Anixter**, formerly Mid-west sales



MULTIPLE WIRE TAKE-UP NO. 1049

An assembly of 6 individual units, each reel-arbor torque motor driven. For use in wire tinning outfits, etc.

Constant wire speed by motor driven capstans.
Each traverse adjustable for width and pitch.
Reels held on expanding arbors.
Welded steel construction.
Ball-bearing mounted throughout.
Capacity — 28 inch reels.

Many other models, including single unit and multiple units, horizontal, vertical or inclined.
Let-offs with adjustable torque motor or friction tensions.
Spinner let-offs with wire tension adjustable while in operation.

WIRE DRAWING, ENAMELING, TINNING, INSULATING, TAPING, GLASS-COVERING, PANNING, AND ALLIED MACHINERY.

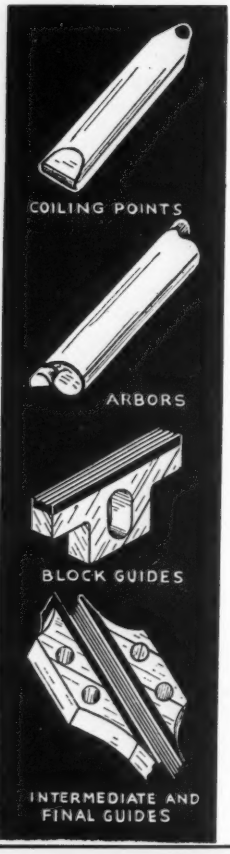
EST. 1855 AIMCO INC. 1915

"American" AIM INSULATING MACHINERY COMPANY

REG. U.S. PAT. OFF.

FAIRHILL AND HUNTINGDON STREETS

PHILADELPHIA 33 PENNSYLVANIA U.S.A.



Get More Production From Your Spring-Making Machines with

Lundahl

CARBIDE TOOLS

Specially selected and Graded

FOR SLEEPER AND HARTLEY, TORRINGTON, AND OTHER SPRING-MAKING MACHINES

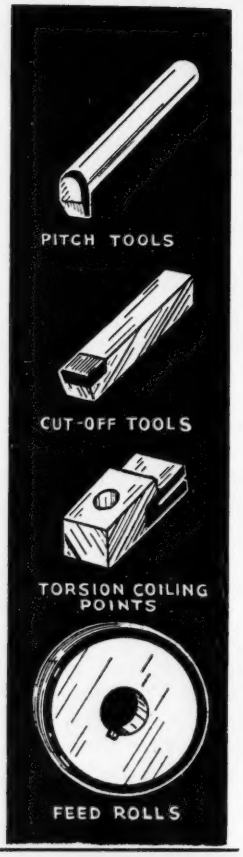
Your spring-making machines will set records for fast, steady production of perfect springs with least down time when you have Lundahl Engineers provide just the right carbide tools. Lundahl tools cost no more than ordinary ones —too! Why not get the whole story on how to save money with Lundahl Tools. Wire today—there's no obligation.

Ask about the Lundahl set-up kit of carbide spring-making tools.

LUNDAHL CORPORATION

Specialists in Tooling for Spring Makers

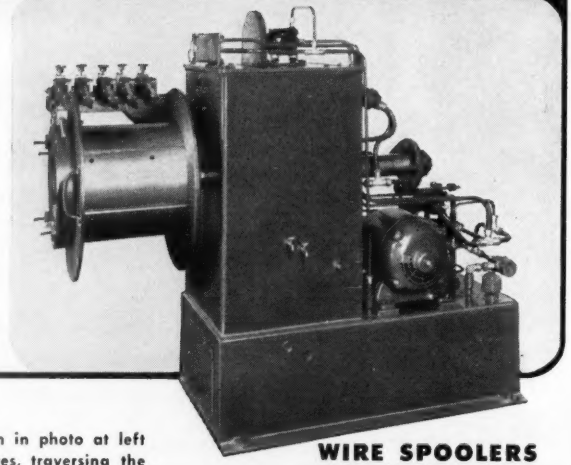
1429 Park Street, Hartford 6, Conn.



COIL 5 STRANDS IN 1 OPERATION

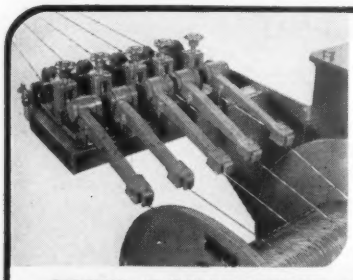
SECO TRAVERSE REEL SPEEDS UP PRODUCTION

This new SECO Traverse Reel winds five separate coils of flat wire or narrow strip *at the same time*. Coils are oscillated-wound, permitting much longer lengths than conventional ribbon-wound coils. Smooth, powerful hydraulic operation gives coiling speeds as high as desired, accurately controlled from zero to top running speed.



WIRE SPOOLERS

Single and Multiple type. Speeds up to 4,000 feet per minute.



Method of coiling is shown in photo at left The complete block oscillates, traversing the wire into five 3" wide coils. Traverse and tension control are extremely accurate. 1/8" to 1/2" wide flat wire can be wound. Block has 16" inside diameter and 24" outside diameter.

Call or Write for Information and Complete Data — No Obligation

STEEL EQUIPMENT CO. 2890 East 83rd St., Cleveland 4, Ohio

SECO

representative, to the position of vice president in charge of sales.

★ ★ ★

With the Rhode Island company for four years, Mr. Anixter's rapid and thorough development of the Mid-West market is credited as the reason for his promotion. He increased sales in the Mid-West more than tenfold in slightly over three years.

★ ★ ★

A graduate of the Wharton School of Business and the University of Pennsylvania Graduate Business School, Mr. Anixter conducted his own wire distributing business before joining the Rhode Island firm.

★ ★ ★

According to Mr. Anixter, plans are now in progress to move the Rhode Island Insulated Wire Company's national sales headquarters to Chicago.

★ ★ ★

Aetna-Standard Personnel Changes

The Aetna-Standard Engineering Company, Pittsburgh, Pennsylvania, announces the following changes in operating personnel. **R. D. Johnson,** formerly General Manager of Ellwood City, Pa., and Warren, Ohio, plants, has been named Assistant to the Vice-President, **H. G. Coffey.** He will be succeeded as General Manager at Ellwood City by **T. C. Ben. Lawrence R. Jeffers** takes over as General Superintendent of Ellwood City Plant, with **W. E. Durstine** as Assistant. **James H. Rauch** has been appointed Superintendent of Roll Department and **Robert R. Kelly** has been named Office and Traffic Manager of the Ellwood City Plant.

★ ★ ★

Charles E. Reardon Joins Wire, Inc.

After many years of service with the Johnson Steel and Wire Company of Worcester, Massachusetts, as Sales Manager, **Charles E. Reardon** has resigned to become Vice President of **The Wire Corporation,** 19 Jackson Street, Worcester 8, Massachusetts. The company draws wire and manufactures wire specialties and is headed by **W. H. MacDonald,** President.

★ ★ ★

Hubbard Moves Plant and Offices to Garrett

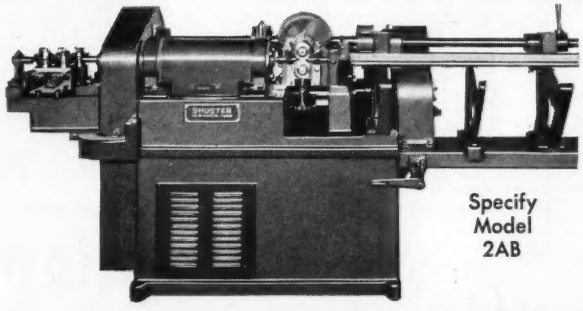
After 35 years in Chicago at 1624 Carroll Avenue, the **Hubbard Spool Company,** well-known throughout the wire industry for their very complete line of spools and reels for wire and cable, have moved their general offices and all production facilities to **Garrett, Indiana.**

★ ★ ★

The move was necessitated by their having outgrown their old plant, large as it was. The new location provides them with better and faster shipping facilities from a point that is more centrally located with respect to their wire mill customers as a whole. This favorable geographical location will enable the company to handle inquiries and orders with greater speed and accuracy than from Chicago. The new plant has been provided with the best modern production equipment to serve the growing demands upon them for spools and reels. Wire men are cordially invited to call and inspect the new facilities.

★ ★ ★

SHUSTER—famous for QUALITY Production



Specify Model 2AB

NOW—Straighten badly twisted wire

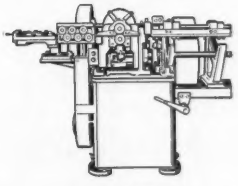
WITH EXTREME SPEED & ACCURACY

THIS new model, with five gear-design straightening rolls, handles even badly twisted wire with ease. And square and rectangular wire may also be straightened and cleanly cut to exact lengths.

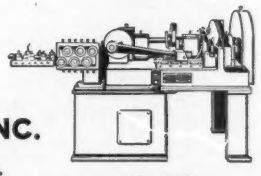
Other SHUSTER features that assure high-speed, quality production are:

—Almost continuous wire travel
—rapid cut-off
—V-belt motor drive
—ball and roller bearings
—extreme rigidity

Capacity 3/16" diameter to ⅜" diameter basic wire. Write for details.



FLAT STOCK STRAIGHTENERS



SLIDE FEED STRAIGHTENERS

Mfd. by **METTLER MACHINE TOOL, INC.**

132W Lawrence St., New Haven, Conn.

Representatives in all principal cities and in foreign countries.

SHUSTER *Automatic* Since 1866 WIRE STRAIGHTENING AND CUTTING MACHINES

The Federal Manufacturing Company

Extends to its many friends in the Wire Industry its best wishes for a

Merry Christmas
and
Prosperous and Happy New Year

We take this opportunity to thank you, our customers, for your patronage and to pledge you our continued best efforts to make Federal Equipment worthy of your future confidence.

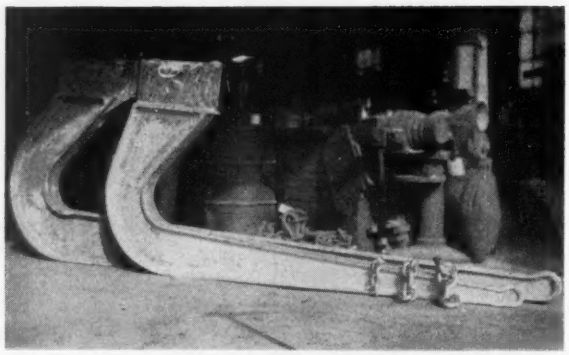
FEDERAL EQUIPMENT
PAY-OFFS
TAKE-UPS
CAPSTANS
DOUBLE TAKE-UPS

Federal Manufacturing Co.
SPECIAL WIRE MACHINERY
236-240 Hall Avenue, Wallingford, Conn.

Use **"ALBRO" METAL** ***THEY LAST!***

HAIRPIN HOOKS *and other* PICKLING EQUIPMENT *for economy*

1. We specialize in the manufacture of pickling equipment.
2. Our engineers are at your service to help you on pickling problems.
3. We build equipment to your specifications.
4. Send us your drawings and let us quote.
5. Write, wire or telephone.



Other "ALBRO" METAL products are:
CRATES, BEAMS AND HANGERS

ALBRO METAL

BRONZE DIE CASTING CO.
FRANKLIN ST. AT OHIO RIVER
PITTSBURGH 33, PA.
TEL.: CEDAR 1-5987-8

Ernest Sadowl

On October 13th, 1951, **Ernest Sadowl,** in charge of turret lathe operations at the **Haskell-Dawes Machine Company** in Philadelphia, passed away.

★ ★ ★

Mr. Sadowl had been continuously employed at the Haskell-Dawes organization for more than sixty years and on the day before his death he worked faithfully and in perfect spirits until the closing of the day.

★ ★ ★

Ernest Sadowl, in his capacity, made as great a contribution to the progress of American industry as any individual could.

★ ★ ★

William Lewis

William Lewis, a director of **John Rigby & Sons, Ltd.,** Bradford, England, died at the age of sixty-six on August 15th. He had been brought into the wire business by the late Charles Rigby. He progressed rapidly, becoming a director and manager of the Cleckheaton Works.

★ ★ ★

Laurence Holdsworth

Laurence Holdsworth, managing director of **Thomas Holdsworth and Sons, Ltd.,** Hill Top Works, Drighlington, Yorks, England, wire manufacturers, passed away on August 28th at the age of 56. He had become chairman and managing director upon the death of his father, Thomas Holdsworth, in 1938. He was greatly interested in wire drawing and spent much time in the mills actually working at drawing wire. Because of this habit and his inventive genius, he had developed many improvements that were considered valuable. During his administration the plant was completely modernized.

★ ★ ★

Henry H. Erkelenz

Henry H. Erkelenz, 72, retired vice president and member of the executive committee of **Harnischfeger Corporation,** died October 6 in a Milwaukee hospital after a short illness.

★ ★ ★

Widely known in production circles, Mr. Erkelenz was active in Harnischfeger management until his retirement two years ago. Born and educated in Germany, Henry Erkelenz left there in 1903 to go to Scotland and England as an electrical engineer. Eight years later he joined the engineering department of the Harnischfeger Corporation in Milwaukee, in February, 1911. In 1925 he was made works manager, and in 1937 Harnischfeger made him an executive engineer and member of the executive committee. In 1943, Mr. Erkelenz was elected vice president in charge of engineering.

★ ★ ★

Sylvio C. Leoni

The Driver-Harris Company, Harrison, N. J., reports the death on September 30, 1951, of **Sylvio C. Leoni** in Milan, Italy. Mr. Leoni was the managing director of two subsidiaries of Driver-Harris Company, Societa Italiana Driver-Harris, Milan, Italy, and Establissements Driver-Harris, Courbevoie (Seine) France. He was born in New York City on July 19, 1888, and was educated in this country and abroad. Following service in Italy in other connections he entered the Driver-Harris Company organization.

★ ★ ★

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Ideal for annealing low- or high-carbon and stainless steel wire and rod; annealing aluminum, and copper and silver alloys; and for descaling stainless and alloy steel wire in molten salt baths.

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During World War II Mr. Leoni was interned by the Nazis in Germany and after much suffering was repatriated to the United States. Upon the liberation of France by the Allies he returned to France, and after the surrender of Italy he again went to Milan, Italy.

★ ★ ★

Joins Alloy Rods Company

Alloy Rods Co., York, Pa., has announced the appointment of **J. O. Cavanagh** to the position of technical director for the company. Mr. Cavanagh has been engaged in research and development work on arc welding electrodes for the past fifteen years and brings to the company a wealth of experience.

★ ★ ★

Copperweld Appoints Manager of New Subsidiary

T. Y. Henry has been appointed division manager of **Copperweld Steel Company's** recently acquired subsidiary, **Flexo Wire Company** of West 1st Street, Oswego, N. Y. The company processes copper and Copperweld wires for electric conductors.

★ ★ ★

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STRAIGHTENING and CUTTING
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So fast, a customer is finding that *two* machines will do the work of *six* machines formerly used.

Model A, shown, will handle .040" to .156" wire.

Other models will handle up to .312"Stock,round.

NORSHOLM "WIRE MASTER" machines will also straighten and cut capillary tubing. Cuts clean so that the hole is not closed.

The "WIRE MASTER" cuts lengths as small as 1 1/2" to within .005" tolerances, with the ***cleanest and most accurate*** cut-off on the market.

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Westinghouse Shifts Bierwagen

R. W. Bierwagen has been made staff assistant for manufacturing of the Industrial Products Division of the **Westinghouse Electric Corp.**, Pittsburgh, Pa. At the same time it was announced that **F. R. Benedict** had been appointed assistant engineering manager of the same division.

★ ★ ★

Townsend Establishes Pacific Division

F. R. Dickenson, President, **Townsend Company**, announced in November the appointment of **E. H. Stau** as Sales Manager of a newly created Pacific Division of Townsend Company, effective January 1, 1952.

★ ★ ★

Stau, who was formerly General Manager of Cherry Rivet Company, a division of Townsend Company, will direct sales activities for the parent company on all Townsend cold-headed metal products in the thirteen Pacific Coast states. In addition, Stau will direct aircraft and government contacts for the Cherry Rivet line of specialized fasteners on a national basis.

★ ★ ★

Mr. Dickenson further announced that ground was recently obtained for a new Townsend plant on a 15-acre tract south of Santa Ana, California. This plant, Mr. Dickenson stated, will be in operation in 1952, and will provide the Townsend Company with greatly expanded facilities to meet the needs of western manufacturers.

★ ★ ★

H. V. Ivory to Manage National Electric's New Plant

The appointment of **Henry V. Ivory**, of Montclair, N. J., as plant manager of its newly purchased million-dollar plant in Elizabeth, N. J. has just been announced by **National Electric Products Corporation**, Pittsburgh, through **W. C. Robinson, Sr.**, President. Mr. Ivory assumed his duties on December 3rd.

★ ★ ★

A Review of Recent Wire Patents

No. 2,569,499, WIRE - RESISTANCE GAUGE FOR MEASURING LARGE STRAINS, patented October 2, 1951 by Harry Shoub, Washington, D. C., assignor to the United States of America as represented by the Secretary of the Navy.

Large strains, such as those in the plastic range of steel may be measured by this gauge, according to the inventor.

★ ★ ★

No. 2,569,552, WIRE CLOTHESPIN, patented October 2, 1951 by William H. Bridwell, Tulsa, Okla.

Except for a sleeve forming a part of the clothespin, the latter comprises a single length of wire coiled upon itself.

★ ★ ★

No. 2,569,618, WINDING MACHINE, patented October 2, 1951 by Morris Rose, Chicago, Ill., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill., a corporation of Illinois.

Layer wound wire coils (such as solenoid coils) are adapted to be wound by this machine which is capable of adjustment to take care of different lengths.

★ ★ ★

No. 2,569,679, APPARATUS FOR WINDING ELECTRICAL COILS, patented October 2, 1951 by John B. Leece, University Heights, and Nathan P. Harmon, Cleveland, Ohio, assignors to The Leece-Neville Company, Cleveland, Ohio, a corporation of Ohio.

There are eleven claims to this patent. It is stated that wire coil (as a field coil) can be rapidly wound on an internal pole projection or the like of a hollow magnet frame.

★ ★ ★

No. 2,570,476, WIRE COATING COMPOSITION, patented October 9, 1951 by Emil H. Olson, Muskegon, Mich., assignor to Anaconda Wire and Cable Company, a corporation of Delaware.

This composition is said to set by gelation without solvent evaporation at a temperature of about 65° F. and consists essentially of a cellulose ester of at least one aliphatic acid containing from 2 to 4 carbon atoms dissolved in a solvent composed of 15% to 30% of a lower monohydroxy alkanol, 50% to 60% of one of a group made up of benzene and its methyl homologues, and 10% to 30% of a lower dialkyl ketone, the amount of said ester in relation to the solvent being sufficient to impart to the lacquer a viscosity in the range from 600 to 1500 centipoises at 100° F. but being not less than 12% by weight of the composition.

★ ★ ★

No. 2,570,490, WIRE COATING COMPOSITION, patented October 9, 1951 by Harry L. Saums, Muskegon, Mich., assignor to Anaconda Wire and Cable Company, a corporation of Delaware.

Here the composition is characterized in that silica of colloidal fineness is incorporated in the composition, the amount of a silica being from 0.25% to 10% by weight of a cellulose ester of the composition, and the maximum particle size of the silica being 50 millimicrons.

Complete Description and Drawings of Patents May Be Had for 50 cents, outside the United States and Canada $1.00. Address, Wire & Wire Products, 300 Main St., Stamford, Conn.

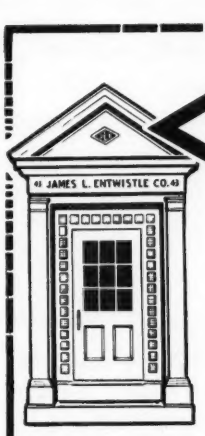
No. 2,570,649, COMPOSITE WIRE FOR SPRAYING A NONDRAWABLE METAL, patented October 9, 1951 by Charles Davidoff, New York, N. Y., assignor to Metallizing Engineering Co., Inc., Long Island City, N. Y., a corporation of New Jersey.

A composite wire is provided for heat-fusible material spray guns of the wire feed type and comprise a spray gun wire substantially consisting of a heat-fusible non-drawable metal in subdivided form mixed with and held to spray wire shape by a synthetic plastic as a binder which is eliminatable from the metal spray of the gun by the heat of the gun.

★ ★ ★

No. 2,570,748, WIRE DRAWING APPARATUS, patented October 9, 1951 by Fillmore Franklin Bain and Olney Broun, Baltimore, Md., assignors, by mesne assignments, to Armco Steel Corporation, a corporation of Ohio.

The method of producing stainless steel wire of high surface luster and free of seams, slivers, lines and the like is disclosed and comprises working stainless steel to the rough wire-size desired, coating the wire with non-metallic coating, cold-drawing the same through a die at the rate of about 100 or more feet per minute while rotating the die during drawing at a rotational speed of approximately 900 or more R. P. M., removing the coating, and thereafter electropolishing the cold-drawn wire thus formed.



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- Wire Guide Units
- Pay-off Reels Stands
- Electronic Devices
- Conduit Connection Sets
- Wire Pre-Heater
- Disk Brakes and Controls, Drag Units and Slip Clutches
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- Labelling Machines
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See page 1136 for news of The Automatic Dual Take-Up

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ANOTHER YEAR IS DRAWING TO A CLOSE, AND WE WISH TO SAY THANK YOU FOR THE NICE RECEPTION YOU HAVE GIVEN OUR PRODUCT DURING NINETEEN FIFTY ONE. YOUR ACCLAIM OF THE

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for 1/64" - 45/64" wire diameters

Suitable for round wire of all types
Maximum accuracy of straightened and cut wire lengths
Clean, accurate cut without burr
Six different wire feed speeds
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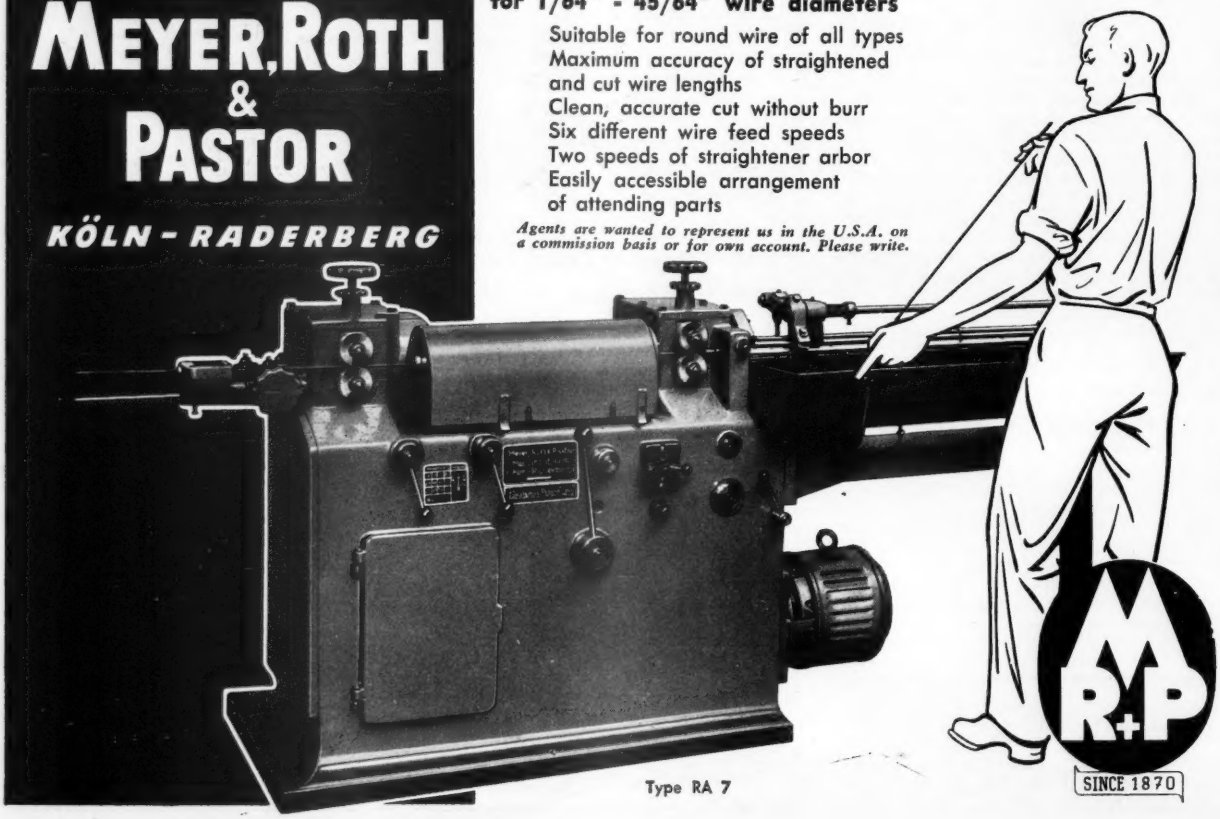


Type RA 7

There is no claim in the patent to the apparatus.

★ ★ ★

No. 2,570,869, METHOD OF MANUFACTURING THIN WIRES, patented October 9, 1951 by Gerrit Schmidt, Eindhoven, Netherlands, assignor, by mesne assignments, to Hartford National Bank and Trust Company, as trustee.

The method is adapted for reducing to minute size electrically conductive filamentary material of a single element of relatively high fusion temperature.

★ ★ ★

No. 2,571,078, APPARATUS FOR FEEDING, SEVERING, STRIPPING, AND BENDING HOOKED WIRE LEADS, patented October 9, 1951 by John Vollmer, Springdale, Conn.

Bending jaws are arranged to receive the stripped forward end of the wire as it is shifted to a cut off position by feeding means and the jaws are operated during advancing movement of the cut off lead to bend a loop in the stripped end of the wire.

★ ★ ★

No. 2,571,184, ZIGZAG SPRING SEAT, patented October 16, 1951 by Ralph C. Bateman and Benjamin J. Schnitzer, Akron, Ohio, assignors to Goodyear Aircraft Corporation, Akron, Ohio, a corporation of Delaware.

This seat includes a straight load-carrying portion formed of zigzag spring wire and front and back support legs for this portion and also formed of zigzag spring wire.

★ ★ ★

No. 2,571,243, COIL WINDING MACHINE, patented October 16, 1951 by Donald E. Hooker, Chicago, Ill., assignor to Lion Manufacturing Corporation, Chicago, Ill., a corporation of Illinois.

Fifteen claims are in this patent to a machine which includes traverse means movable progressively along a mandrel for guiding the work material thereon in adjacent turns, counter means driven by a motor to indicate the number of turns on the mandrel, and inching means, operable at will, to drive the mandrel at slow speed to obtain an accurate number of turns wound thereon.

★ ★ ★

No. 2,571,364, SPRING STUD FASTENER, patented October 16, 1951 by Thomas W. Hosking, Detroit, Mich., assignor to United Carr Fastener Corporation, Cambridge, Mass., a corporation of Massachusetts.

A fastener is provided, comprising a single length of wire bent to shape.

★ ★ ★

No. 2,571,632, MACHINE FOR CONTINUOUS POLISHING OF WIRE OR RODS, patented October 16, 1951 by Per Gunnar Vinell and Bengt Holger Jernberg, Munkfors, Sweden.

Cylindrical housings for the grinding disc spindles are provided with adjusting means which operate both housings simultaneously and in proper relationship.

★ ★ ★

No. 2,571,947, ADJUSTMENT GAUGE FOR COILS, patented October 16, 1951 by Robert Gordon Russell, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England.

A power-driven automatic locating gear for locating a load (upon a cradle) relatively to a predetermined axis is provided.

★ ★ ★

No. 2,571,984, WORK SUPPORT FOR FASTENER FORMING AND INSERTING MACHINES, patented October 16, 1951 by John G. Wright, Charles D. Toney, Charles A. Watkins and Eugene Sudan, Atlanta, and William A. Maxwell, Duluth, Ga., assignors to The Auto-Soler Company, a corporation of Georgia.

This machine is of the class which forms the fasteners from a continuous length of wire.

★ ★ ★

No. 2,572,052, METHOD AND MACHINE FOR MAKING ELECTRIC COMMUNICATION CABLES, patented October 23, 1951 by John Richard Pheazey, London, England, assignor to International Standard Electric Corporation, New York, N. Y., a corporation of Delaware.

Wire strands are brought to a lay plate having a number of openings through which the strands pass as the plate is angularly reciprocated. Means is provided for binding the strands in the relative positions given to them by the lay plate.

★ ★ ★

No. 2,572,573, METHOD OF INSPECTING ELECTRIC LAMP FILAMENTS, patented October 23, 1951 by Robert B. Reid, Beverly, Mass., assignor to Sylvania Electric Products, Inc., Salem, Mass. a corporation of Massachusetts.

The disclosed method of determining the source of contaminating oil on tungsten wire during the fabrication of electric lamp filaments therefrom which comprises adding a different colored oil-soluble fluorescent dye to each of a plurality of oil-bearing parts of the machine on which the filaments are fabricated and inspecting the wire under a source of ultraviolet light during the fabricating process to detect the presence of contaminating oil thereon.

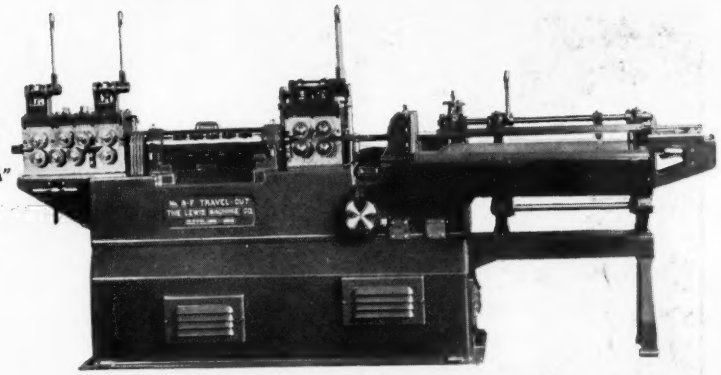
★ ★ ★

Fast, Accurate, Economical

STRAIGHTENING and CUTTING

with LEWIS **TRAVEL-CUT**

MACHINES



22 Models to handle from 1/16" to ¾" Round, Hex, Flat, Shapes.

Simple in design, rigid in construction, Lewis TRAVEL CUT will deliver continuous dependable service under the most severe, high production conditions—day in, day out. Feeds wire from the coil, straightens accurately, gauges to uniform length, and cuts clean without stopping the wire. For steel, brass, aluminum and alloy wire. Cut your cutting costs with the Lewis TRAVEL CUT. Full details on request.

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CANADIAN: Empire Engineering Co., 11 Wellington St. E., Toronto 1, Ontario.

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3441 E. 76th Street, Cleveland 27, Ohio

Also agents in Paris, Stockholm, Rotterdam, Brussels, Zurich, Milan, Bombay and Melbourne

No. 2,572,647, SELF-THREADING FASTENER, patented October 23, 1951 by Frederick H. Merwin, Milford, Conn., assignor to Milford Rivet and Machine Company, Milford, Conn., a corporation of Connecticut.

A tapping screw fastener is provided comprising a threaded shank having a threaded, plural-part divided tapering tip, the parts of which have closely juxtaposed backing surfaces adapted to engage and back up each other, and have thread-profile leading edges and trailing edges, the parts being so located with respect to the axis of the shank that the trailing edges are closer to the axis than the leading edges so that the latter constitute cutting faces for cutting a screw thread.

★ ★ ★

No. 2,573,669, MACHINE OR APPARATUS FOR STRAIGHTENING METAL RODS, BARS, AND THE LIKE, patented October 30, 1951 by Allan MacBeth, Fernhurst, England, assignor to executors of James Mills, Limited, Woodley, near Stockport, England.

More specificially, the invention comprises a device for feeding round stock such as metal bars and rods into the nip of the rolls of a straightening machine.

★ ★ ★

Continuous Steel Ingot Casting Process Announced

A revolutionary patented process for a multiple, horizontal continuous method of casting billet size steel ingots, called the **"Jacquet Method"** has been announced.

★ ★ ★

This is a Belgian invention, a pilot plant for which has been built and operated with results that have been extremely satisfactory. The Belgian concern is represented in this country by **Belgameric, Inc.,** 350 Fifth Ave., New York 1, N. Y.

★ ★ ★

Veteran Wire Man Retires

E. C. Kirkpatrick, formerly Works Manager of the **Steel Company of Canada's Dominion Works** at Lachine, Quebec, retired on October 1, 1951, at the age of 67. Mr. Kirkpatrick had been with the company for forty-six years.

WIRE SPOOLS, ALL-STEEL, LITHOGRAPHED

Ends and traverses may be shipped separately and assembled easily in your plant on a hand, foot, or power press.

5" and 6½" diameter ends with 1-15/16" diameter traverses.
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Traverse lengths up to 12".

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STATEMENT OF OWNERSHIP, management and circulation, required by the Acts of Congress of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233), of WIRE AND WIRE PRODUCTS, published monthly at Orange, Connecticut, for October 1, 1951.

1. That the names and addresses of the publishers, editor, managing editor, and business managers are:

Publisher, Quinn-Brown Publishing Corporation, 300 Main Street, Stamford, Conn.; editor Edmund D. Sickels, Old Greenwich, Conn.; managing editor, none; business manager, Ruth S. Spengel, South Norwalk, Conn.

2. That the owner is: (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern its name and address as well as those of each individual member must be given.) Quinn-Brown Publishing Corporation, 300 Main St., Stamford, Conn.; Richard E. Brown, 300 Main St., Stamford, Conn.; Leta B. Brown, Montecito, California, and Ruth S. Spengel, Shore Front Park, South Norwalk, Conn.

3. That the known bondholders, mortgagees, and other security holders owning or holding one per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

RICHARD E. BROWN
Publisher

Sworn to and subscribed before me this 13th day of September, 1951.

HAROLD T. DOWNEY
Notary Public
My commission expires April 1, 1952

One of the most indispensable links in our business chain is selling. No matter how good our products, they must be sold if we, as manufacturers, are to stay in business and make a profit.

Advertising, as a form of selling, works constantly for you, backing up your salesmen when they make calls, keeping your products in a buyer's mind when the salesmen can't get around and calling on many of your possible buyers whom the salesmen do not even know.

Advertising is a powerful selling force—one that every manufacturer should use. To reach the wire industry—advertise in WIRE AND WIRE PRODUCTS.

New Fluorescence Analysis Unit in Production

The new Norelco Fluorescence Analysis Unit which incorporates many design improvements to facilitate rapid qualitative and quantitative analysis of constituents in metals, alloys, minerals, ores, chemical mixtures and compounds, is now in production at the **Research & Control Instruments Division, North American Philips Company, Inc.,** 750 South Fulton Avenue, Mount Vernon, N. Y.

★ ★ ★

The company introduced the first Fluorescence Analysis equipment to the market in 1948 and the present model reflects many new ideas acquired as the result of field testing and experience.

★ ★ ★

Specimens under analysis are exposed to an intense beam of exciting X-radiation. This results in individual X-radiations being generated by elements susceptible to such excitation. The combined radiations representing the various constituents are passed through a special collimating system to a crystal which serves as an analyzer and which, by proper positioning reflects of the indidividual radiations at a specific angle. Intensities are measured by means of a Geiger counter, arranged together with the crystal and its angulating mechanism on a specially designed goniometer. Data obtained from this system may be evaluated in terms of percentages of the elements present.

★ ★ ★

As distinguished from X-ray diffraction which gives precise data about atomic structure, Fluorescence Analysis provides precise quantita- and qualitative data with respect to the elements present. Difficult analyses involving solids, semi-solids and liquids can be carried out in much less time than when ordinary chemical methods are employed. Moreover, Fluorescence Analysis is entirely non-destructive and permits analysis of very small specimens.

★ ★ ★

Advertising has ruined many a business—when it is all done by the other fellow.

New Division of Elgin to Handle Diamond Abrasive Materials

With the rapid growth and acceptance of its line of diamond abrasive materials, marketed under the trade name DYMO, the Elgin National Watch Company, Elgin, Illinois, has announced the organization of a new Abrasives Division. The new division will be headed by C. R. Myer, Manager. John F. Ireland will direct sales and D. H. Prentice will act as Technical Director.

★ ★ ★

All DYMO diamond abrasive materials, including a new compound prepared especially for carbide finishing, are completely processed by the company. Grading is performed under strict laboratory control and certified by the company to be in accordance with U. S. Bureau of Standards specifications.

★ ★ ★

In addition to diamond abrasives, the new division will market a line of accessories normally required in fine finishing operations.

★ ★ ★

Leading British Manufacturers use Prolite DRAWING DIES

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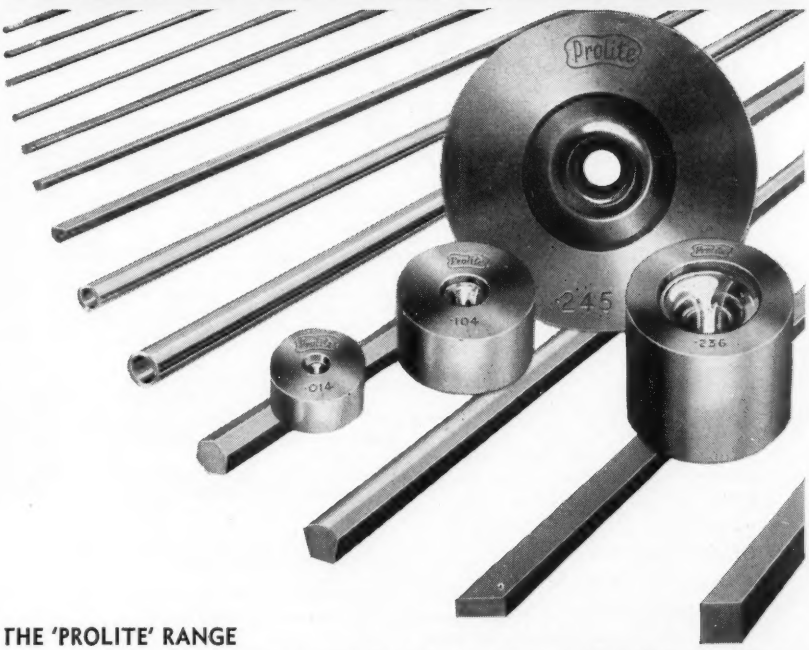

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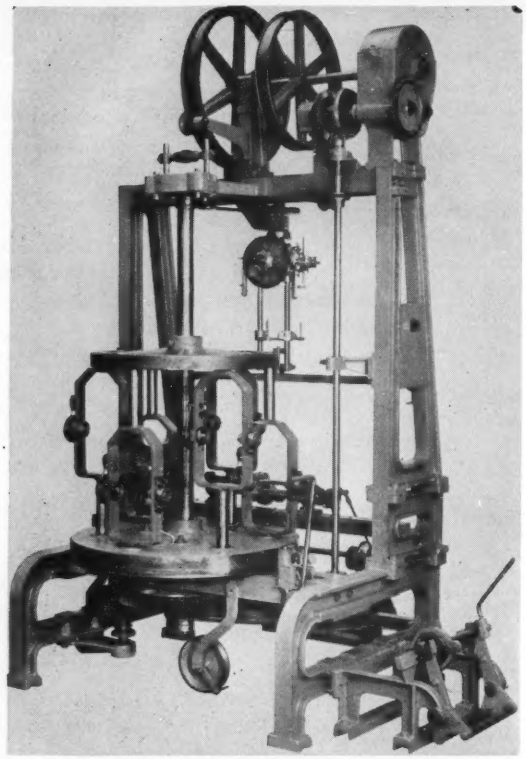

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IT IS:

- noiseless because driven by V-belts;
- highly productive because handles large drums;
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- efficient because 3 papers or 1 cotton can be applied after the assembling operation.

Has Haul-off Capstan 24" Diam.
Built with 4, 6, 8, 12 and 18 Bobbins.

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A completely new and different concept of electrically heated extruder designed for plastics materials. . . . Higher operating temperatures. . . . Lower operating costs. . . . Radiant heated. . . . Zoned as required throughout cylinder and head. . . . Even and controlled cooling. Royle Spirod Extruders have been field-tested and their stamina proved. Check these features that assure trouble-free operation —positive results.

- Heavy steel members without flanges
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- Long life heating elements provide high and sustained operating temperatures
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U. S. To Have Fourth Major Aluminum Producer

The Anaconda Copper Mining Company will enter the primary aluminum field, according to a statement made by **Cornelius F. Kelly**, chairman. Anaconda, subject to government approval will acquire commitments from the Harvey Machine Company to build a primary aluminum plant at Kalispell, Montana. The initial capacity of the plant is estimated at 54,000 tons per year, but may be stepped up. Anaconda has been fabricating some aluminum products at its wire and cable unit and also at its subsidiary, the American Brass Company.

★ ★ ★

1950 ingot production by Alcoa, Kaiser and Reynolds totaled 749,750 tons. Their expansion plans should provide 1,329,750 tons in 1953.

★ ★ ★

New Aluminum Solder

Denis Cateux of Durban, South Africa, is credited with having developed the first aluminum solder that makes possible the soldering of copper, brass and zinc to aluminum and aluminum alloys.

★ ★ ★

Heil House Organ Devoted to Pickling and Plating Equipment

The current issue of **"Heiline News"**, Vol. VIII, No. 2, is devoted to acid proof equipment used in pickling and plating operations in steel and wire mills. It describes agitating equipment, tanks, fume ventilating and scrubbing systems and accessory equipment used in wire making. The issue is profusely illustrated. Copies are available to interested parties within our industry. Address **Heil Process Equipment Corp.**, 12,901 Elmwood Ave., Cleveland 11, Ohio.

★ ★ ★

G.E. Moves J. T. Coe to Waterford

Jerome T. Coe of General Electric's Chemical Division has been appointed customer service supervisor for silicone products with offices in Waterford, N. Y., according to an announcement by **Wallace W. Ryall**, sales administration and control manager for the Division's Chemical Materials Department.

★ ★ ★

Mr. Coe, who has been manufacturing engineer at G.E.'s silicone plant in Waterford, N. Y., since last October, was previously in charge of the plant's process development section. He came with the Company in 1942 shortly after his graduation from the Massachusetts Institute of Technology, where he received his B.S. Degree in chemical engineering.

★ ★ ★

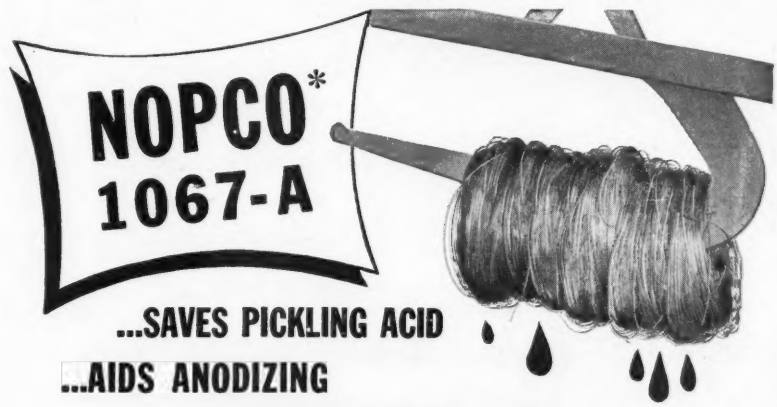
Company Organized to Make Coat Hangers

A new concern, **The Diamond Wire Hanger Company**, has been organized at Clairton, Pa., to manufacture wire coat hangers.

★ ★ ★

The announcement was made by **H. B. Stein**, president and owner, who also stated that a modern new plant had been set up, in which production was expected to get under way about the middle of November.

★ ★ ★



...SAVES PICKLING ACID
...AIDS ANODIZING
...IMPROVES PHOSPHATIZING

In all of these important operations—pickling, anodizing, phosphatizing—the remarkable ability of Nopco 1067-A to reduce surface tension in mineral acid solutions leads to definite economies, improvements in processing, and better final products.

PICKLING—Addition of Nopco 1067-A to the pickling bath—

(a) reduces loss of acid solution through carry-over to the rinsing tank by 30% to 40%;

(b) reduces acid contamination in operations following pickling—helping to increase die life;

(c) effects faster and more uniform penetration of oxide scale—assuring clean, *smooth* metal surfaces after pickling.

In general, 0.1% of Nopco 1067-A on the weight of the acid solution gives outstanding results.

ANODIZING—Use of Nopco 1067-A in the anodizing bath not only affords high drain-off of the acid solution, but results in "taming" of the bubbles caused by air-blast agitation. Bubbles are reduced in size and they burst gently, minimizing spray. In some instances, need for costly lead-lined exhaust fans has been eliminated.

PHOSPHATIZING—Addition of 0.1% of Nopco 1067-A to "Bonderizing" chemicals lowers surface tension substantially. This results in exceptionally even spreading which promotes excellent over-all adherence of paint or enamel to ferrous metal.

Mail the attached coupon today. We'll send you promptly full information about Nopco 1067-A —the unique wetting agent which not only assures improved products but saves money, time, and labor in all types of acid treatments.

*Reg. U. S. Pat. Off.

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New National Rubber Machinery Sales Office

As a further service to its eastern rubber and plastics customers, **National Rubber Machinery Company** announces the opening of an eastern sales office in the Raymond Commerce Building, 1180 Raymond Boulevard, Newark, New Jersey, telephone Mitchell 2-1849.

★ ★ ★

This office will be under the direction of **E. R. Coddington**, recently appointed Eastern Sales Manager. Mr. Coddington has been associated with NRM for four years at the General Sales Office in Akron.

★ ★ ★

Literature on Special Plating Processes

The Hanson-Van Winkle-Munning Company offers to the plating industry a new and revised condensed description of special H-VW-M Electroplating Processes. Bright, high speed processes are described for the electroplating of cadmium, zinc, copper, nickel, and silver, along with information on improved methods for lead plating. For these interested in any particular process, they have technical manuals illustrating and describing the various processes in detailed form. Write to The Hanson-Van Winkle-Munning Company, Matawan, N. J.

★ ★ ★

Battelle Issues Booklet on Research

The Battelle Memorial Institute, which has been serving American Industry through research projects for the past twenty-three years, has issued an interesting booklet entitled: "Research in Production Engineering". Part of its story is told in describing its services to industry, what research covers in the development and evaluation of materials and methods, product development, and the development of equipment. It describes how production research works, illustrating some of the equipment used in their laboratories.

★ ★ ★

The Institute operates on a non-profit basis, conducting research projects in all of the major fields of industrial activity.

★ ★ ★

A copy of the booklet, which contains information on arrangements made with sponsors, may be secured by writing to the Battelle Memorial Institute, 505 King Avenue, Columbus 1, Ohio.

★ ★ ★

Carboloy Moves A. E. Johnson to Coast

In view of rapid expansion of defense production in industry on the West Coast and the necessity for increasing productivity by every possible means, **Carboloy Department of General Electric Company,** Box 237, Roosevelt Park, Detroit 32, has transferred **Arthur E. Johnson** from its customer training school in Detroit to its Pacific District Office at 5905 Pacific Boulevard, Huntington Park, California.

★ ★ ★

Mr. Johnson is a graduate in mechanical engineering from North Carolina State and has been assisting Robert Brierley, Director of the Customer Training School, in helping to teach latest developments in efficient utilization of carbide tools and dies.

★ ★ ★

Pennsalt to Offer Common Stock For Shares of Sharples Chemicals

Managements of the **Pennsylvania Salt Manufacturing Co.** and

Wire Drawing Machines, working on the dry and wet method (soap powder and by immersion), for iron, steel, copper, aluminum and other metal wires.

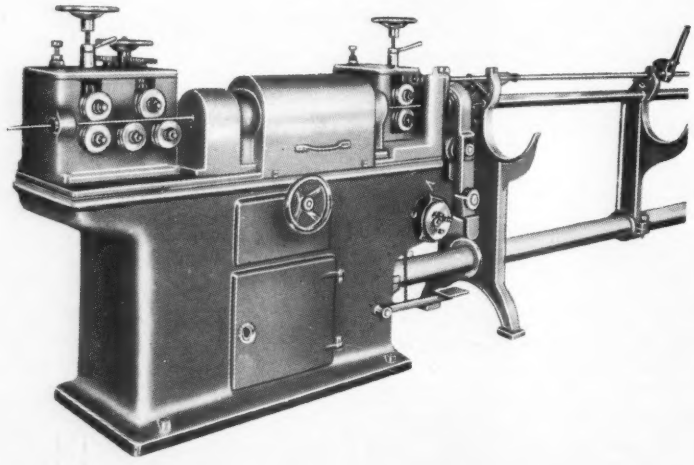
EW

Metal Wire Cloth Weaving Looms (fly-& mosquito nets, sieves, plastering work).

Automatic Straightening and Cutting Machines.

Machines for producing:

Wire nails and wire tacks, rivets, iron & wood screws, small nuts, welded and non-welded chains, knotted chains, barbed wire, wire pins, safety pins, hair clips, spokes and nipples for bicycles, etc. etc.



EMILIO WARTENWEILER

MILANO (Italy) Via G. B. Pergolesi, 18

Sharples Chemicals Inc. have entered into an agreement whereby Pennsalt common stock will be offered in exchange for Sharples common stock at the rate of 5.15 shares of Pennsalt for one share of Sharples the latter part of December.

★ ★ ★

Officers of the two companies point out that combining the two businesses will further diversify both. Pennsalt has been engaged principally in the manufacture of inorganic chemicals but in recent years has been extending its activities into the organic field. Sharples Chemicals has specialized in synthetic organics.

★ ★ ★

Among the principal raw materials required for Sharples' products are chlorine, caustic soda, and ammonia, which for many years have been purchased from Pennsalt by Sharples. It was to obtain these Pennsalt products that Sharples located its plant adjacent to Pennsalt's Wyandotte, Mich., works in 1932.

★ ★ ★

Protective Finishes Research Program

American Chemical Paint Company, Ambler, Pennsylvania, announces that it has recently undertaken a research program under contract with the Office of the Quartermaster General, Washington, D. C.

★ ★ ★

The scope of the program will be the investigation and development of pre-paint treatments and final chemical treatments of metal surfaces, for the protective finishing of designated Quartermaster articles of supply. The items to be studied include metal containers and equipment hardware.

★ ★ ★

Phelps Dodge to Re-Open Copper Mine in Bisbee

The Phelps Dodge Corporation, in a move to provide more copper, is planning to spend $25,000,000 to mine copper at Bisbee, Arizona. The ore is low-grade and had become unprofitable for underground mining and the new project will operate as an open-mine pit.

★ ★ ★

While Bisbee was never a boom town, it never became a ghost city. It lies in a narrow, twisting canyon with homes and business buildings perched at precarious angles on the steep hillsides. Mothers are said often to secure their children with tether ropes to keep them from falling out of the yards. It is felt that the new mining procedure will make the overture a profitable one.

★ ★ ★

Armour Foundation Issues Annual Report

The Armour Research Foundation of the Illinois Institute of Technology, Chicago 16, Illinois has published its 1951 Annual Report.

★ ★ ★

In this they publish a description of a large number of their numerous research projects for industrial concerns and government agencies, indicating the breadth of the scope of their facilities. The Foundation employs a professional staff of 600 scientists and engineers drawn from practically every field of technology.

★ ★ ★

The Foundation will be glad to consult with industrial concerns on the manner in which their facilities may be made available to them on problems that may be solved through research.

★ ★ ★

The Specialists in Wire-Straightening and Wire-Cutting!
Diameter Range 1/16" to .005"
Our motto...Precision
Wire men everywhere concede that nobody in the world can match our precision straightening and cutting. This reputation springs from almost two decades of flawless workmanship for the automobile, aircraft, radio, television, communications, toy and textile industries.
Length tolerances in the ten thousandths of an inch are routine here. Wire ends show no burrs. Every day, tons of soft and hard wire are cut anywhere from fractions of inches up to 20 feet.
Don't hesitate to bring your wire straightening and cutting problems to Pittsburgh Cut Wire Company.
Straightening and Cutting All Types of Wire . . .
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The Communications Wire Program of the Signal Corps

(*Continued from page* 1142)

for use in our fixed plant wire communications networks, and for use as maintenance or replacements in our equipment. I told how requirements came into being, very briefly explained the planned procurement program, and discussed by category some of the present requirements and probable future requirements that may exist for wire and cable.

★ ★ ★

In closing, I would like to state that Industry and the Armed Forces constitute a team which has advanced the United States to the front as a strong nation. The team must always practice to work together so that we remain the strongest combination in the world. With the cooperation of every Freedom-loving individual, we can accomplish our aims, and the chances of a World War III will be lessened to a point where no agressor will dare to attack us. Together we must be ready.

★ ★ ★

Production of Scarce Metals Increasing

A substantial increase in the domestic production of cobalt, nickel and copper for stockpiling and other defense needs has been assured under an agreement reached in October by the Defense Materials Procurement Agency and the National Lead Company of New York.

★ ★ ★

Jess Larson, DMPA Administrator, said the agreement will step up the production of cobalt, 6,930,000 pounds; nickel, 9,261,900 pounds and copper, 7,087,500 pounds over a five-year period.

★ ★ ★

The three metals will be processed from rejected residual iron concentrates from the production of lead at the company's reduction plant at Fredericktown, Missouri.

★ ★ ★

The company undertake a $5,000,000 expansion program of their facilities at Fredericktown, including the construction of a cobalt, nickel and copper separation plant.

★ ★ ★

More Aluminum

The General Services Administration has announced that it had issued a letter of intent to the Reynolds Metals Company for the construction of additional production facilities for primary aluminum in the amount of sixty thousand tons per year. Reynolds Metals Company is proceeding to finance this expansion by the use of private capital with General Services Administration offering a procurement contract and guarantee of such loans as may be required.

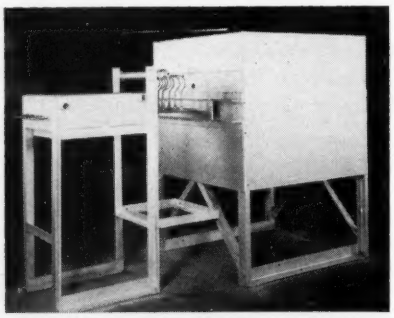
★ ★ ★

Reynolds Metals Company indicated their plan to produce fifty-five of the sixty thousand tons involved in Arkansas in addition to its present facilities located in that State.

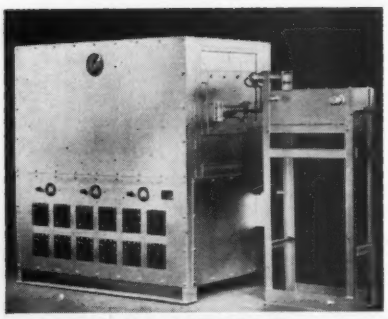
★ ★ ★

Harper

UNIFORM RESULTS EASILY OBTAINED ON STAINLESS WIRE With HARPER STRAND ANNEALERS



110 Strand Wire Annealing Furnace Model HOU-10224-NT-28.



3 Strand Wire Annealing GFurnace Model HOU-5140-NT.

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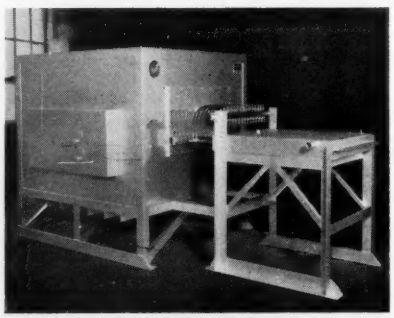
Uniform results are easily obtained through extreme temperature uniformity during a slow anneal in a special atmosphere.

Eliminate furry results and put your stainless wire production on a trouble-free, more economical basis with a Harper Electric Strand Annealer. Our Engineers will be glad to work with you on your furnace requirements. Write today, to:



30 Strand Wire Annealer Model HOU-30240-NT-28.

HARPER ELECTRIC FURNACE CORPORATION

Dept. #12, 39 River Street, Buffalo 2, New York

Announce New Norelco MA Stabilizer

A new Norelco MA Stabilizer, designed specifically to hold tube current constant at any given setting when used in conjunction with the company's water-cooled X-ray diffraction equipment, has been announced by the Research & Control Instruments Division, **North American Philips Company, Inc.,** 750 South Fulton Avenue, Mount Vernon, New York.

★ ★ ★

For work where extremely constant X-ray tube current is important, the new MA stabilizer will be of great benefit since it has three ranges, 0.5 to 2 Ma, 7 to 25 Ma, and 25 to 50 Ma. A mechanical stop is provided on the variable auto-transformer to assure sufficient X-ray tube voltage—approximately 10 Kv—this prevents excessive heating of the X-ray tube filament.

★ ★ ★

The new Ma Stabilizer is designed so that it can be built into all existing Norelco X-ray diffraction equipment. It is directly connected to the M & G terminals on the high voltage transformer. It holds to within 0.1% any irregularities in the X-ray tube filament current due to such things as change in contact resistance or change in filament characteristics due to heat.

★ ★ ★

Seen and Heard at the Konvenshon

(*Continued from page* 1152)

luncheon, and smoker, let's get on to the "pièce de résistance" of the affair. Through the courtesy of the **American Steel and Wire Company, John Gaut, Ray Snow** and many others, we were politely carried by bus to Joliet. A fine buffet style luncheon for nearly 300 was served, compliments of the A. S. & W. management. Then off to the Joliet mill for an inspection trip. One guide remarked, "It's the world's largest producer of merchant wire products." It is too! Another stated that there were 163 machines to draw wire and 130,000,000 pounds of nails come off the machines annually.

★ ★ ★

I counted up to 3,000 different kinds and sizes ranging from ¼ inch brads to 16 inch spikes—and got tired. **Chuck Orr** and I spurned the average run of guides, latched on to the top guide, **Ray Snow,** Bossman, for our trip through the mill. Believe Orr works for **Floyd Hauger,** or is it visa versa, peddling Standard Compounds. We learned that this mill was indeed quite a shop. Enough welded fabric can be produced in a year's time to lay a roadway 20 feet wide from Joliet to Harrisburg. Not that they are planning such a stunt for the publicity value, but it's just a plain fact! Should you ever retire and get back to the farm, 120,000,000 bale ties for packaging bales of hay are yours for the asking—plus a small cash consideration. And when a guide said they turned out 75,000 miles of wire daily, we smiled and slowly walked away. Where does it all go? And they say there's still a shortage!

★ ★ ★

Personalities in the news. There were no less than four **Haarbauers** on hand—Grandfather Henry from

Ready with quality soaps for every wire drawing need. Whatever your specialized need, you can always find the right soap in Swift's complete line. And you'll find that Swift's Soaps for wire drawing uses have efficient lubrication, minimum dusting and dependable uniform quality.

Willing to apply our knowledge of soap to your lubrication problems.

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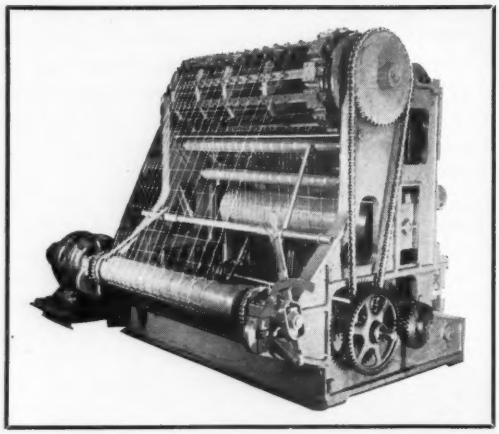
Call SWIFT first for soaps

INTERLOCKING FENCE LOOMS



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- Preferred by Leading Mills.
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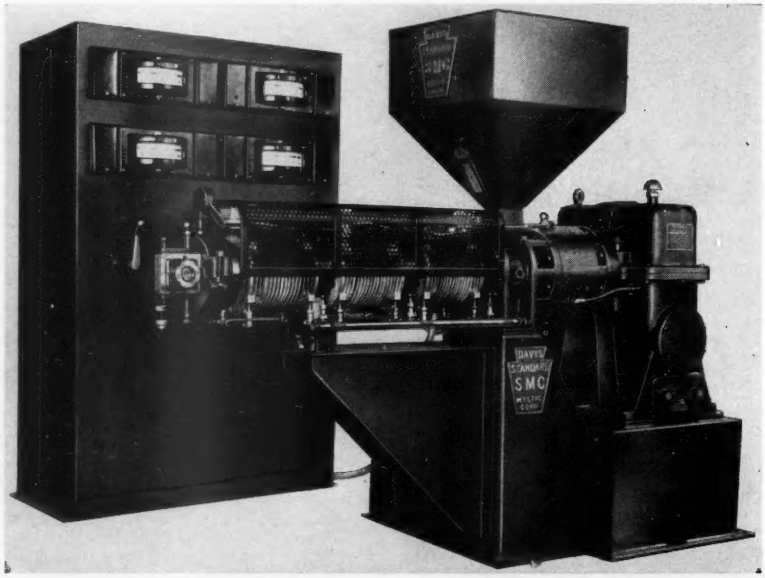
Davis-Standard Extruders are setting the pace for greater production of finer rubber and plastics goods everywhere. The quality of design and manufacture is unsurpassed anywhere in the world. Your customers and your profit sheet invite an investigation of this equipment.



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Canada: Williams & Wilson, Ltd, Montreal, Toronto.

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Pacific Coast: W. H. Del Mar Co. 5140 Crenshaw Blvd., Los Angeles

Townsend Co., and sons Bill from Reynolds, George from Plymouth, Michigan, and Don from T. C. I. & R. R. Co. There's one for the books! Don is in the sheet game now but still feels quite an allegiance to the rod and wire industry, so he and family always take in the big show! From Youngstown, ran into **Floyd (Slim) Hoskinson** and **Welshman, Joe Williams.** Glad to see **Roy Mackay** in from the Point, along with perennial conventioneer, **Pete Raffensperger.** Too bad **Carl Johnson** had to miss this one, but someone had to hold down Sparrows Point for the week. It was good to see learned met. **Louie Winkler** enjoying the meeting. No convention is ever complete without the famed Steelskin family. There was **Walt Smigel, Al LeBlanc,** a guy by the name of **Crum** (E. Jefferson) and last but not least, the poor man's Diamond Jim Brady, **Van Miller** from Homer, New York. Consultant **Flint Elder,** ex of A S & W fame honored us with his presence.

★ ★ ★

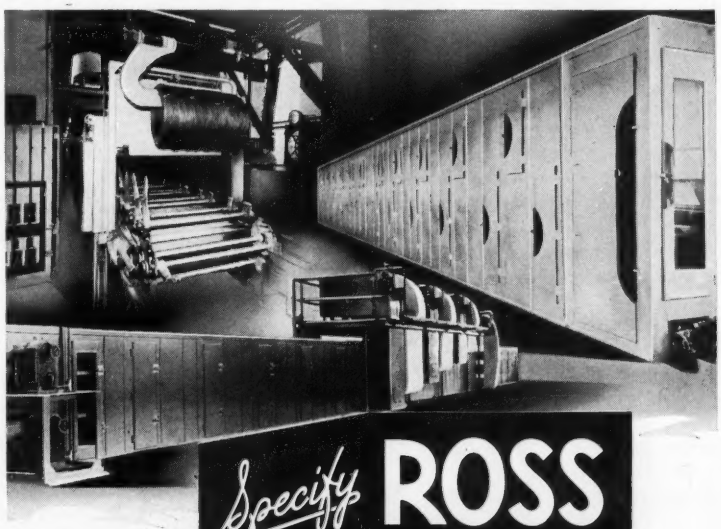
Miller reminds me of either the "Roaring Forties" or the "Gay Nineties" (both periods long before my time, but I've read about 'em). We'll class Van in the "Nifty Fifties" and thank him for a wonderful party. My wife is still looking for the free corset sample from Van's new company! **Chuck Williams** in from Monessen. He had a fine paper at one of the meetings. From the Azed Company in Waukegan (actually known as the birthplace of Jack Benny) **Doc Chester, Joe Irwin, Ralph Jenkins,** and **Pete Gaul.** From Williamsport, we observed **Bill Louder** and **Johnny Corson; Harry Brown** from Lebanon, Pa.; **The Hills,** Bill, Sr. and Jr. from distant Rock Falls. Too bad we couldn't get the Douglas father-son combine in from R. B. & W. at Coraopolis. Next year perhaps. **Lee Vaughn** and sons, Jim and Gordy. Naturally **Gene Daugherty, Pat "Weasel"** and silver-topped. **McIllvried** were on hand. From different Republic mills, to name a few: **Stan Caufield, Bucky Buchanan, Tom Girdler, Jr.** (not Sr. as the badge indicated). From Portsmouth, genial **Uno Johnson, "Jack" Jackson, Steve Gaspich,** and, of course, happy **Frank Weise, Jr.** A few in from Roebling included **Ray Worth, Ty Updike, Rudy Hertzog** and others. **Mr. Trembecki** and Junior Partner (Mrs. T) on hand selling the wares of their new company. **Syl Splain** and **Lou Sholver** relaxing in the lobby. From Indianapolis, and an old hand at pickling, **Harry Peterson. Carl Heil's** new Sales Manager from Heil Process Equipment Corp., **Eddie Vereeke.**

★ ★ ★

Nice to see **Jack Carne, Wally Noad's** replacement from B. H. P. Co., Ltd. in Australia. Mr. Carne will hold down their offices at 100 Park Ave., N. Y. C. Even ran into **Bill Parkin** from Parkin Chemical Company—never do see much of him at conventions. I'm always on the other side of the hotel!

★ ★ ★

Stu Gray from Kansas City looking like an up and coming wire man and ubiquitous **Curt Voigtlander.** "Irish" **Frank Leahey** from Davenport—no connection to the foobtball fellow of the same name! **Alan Dove** from Canada, still with the same pipe in hand and same concoctions therein. **"Sandy" Sanderson,** the poor man's Clark Gable, enjoyed the sojourn also. No party is ever complete without the Dean



Ross Wire and Rod Baking Equipment is operating in plants of Alloy Rods Co., Arcrods Corp., Gilbert & Bennett Mfg. Co., Harnischfeger Corporation, International Nickel, McKay Co., Metal & Thermit, A. O. Smith Corp., Westinghouse Electric and others.

Specify ROSS WIRE and ROD OVENS

For drying the coatings on steel and alloy rods or for baking lime coating on wire, ROSS equipment provides design refinements and operating advantages that greatly increase output of better finished products. This accounts for their use in the leading plants throughout the industry. Write to our office nearest you for complete details.

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ACTUAL MICROPHOTOS PROVE STAR DUST SUPERIORITY AT A GLANCE . . .

STAR DUST is so accurately crushed and graded by Ace's new laboratory method that it achieves uniform nodular shape, permitting all particles to work. Thus you are assured finishes of less than half a micro inch, quicker than ever before. By contrast, note lack of uniformity and the flats in the "unnamed" brand that prevent accurate finishing!

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Deliveries are surprisingly good!

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of Wire Mill Men, Uncle **Clem McGowan** and his "boss", Mrs. Mac. From Blue Island came G. & B.'s man, **Frank Anderson** and **Bob Weyant.** Also **Bill Bawden** from G. & B. over in Connecticut. Shouldn't ever forget my good friends from A. C. P. in Ambler, Pa.—**Jim Abrams, Weikel, Dick Bailey, Anson Beighley,** and others. Isn't competition fun?

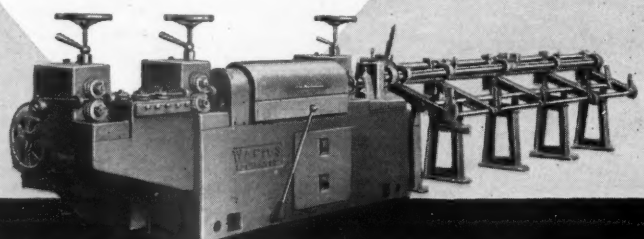
★ ★ ★

All the way from the West Coast, dapper **Ken Davis, Elmer Bond** and **Earl Potter** and his better half. **Al Knapp** and **Bob Peterson** in from Worcester. **Rod Tatnall** and **Will Campbell** from Buffalo, N. Y. Big **Johnny Moritz** relating that son John (with Stand. Comps.) had come through a severe back operation in Chicago during that week and was O.K. Missed you, John, and here's luck for a quick recovery. From Sparrows Point University, other alumni included **Bill Hitchcock** from Branford and **Red Crewe** from Maryland. **Hank Passolt,** now with **Joe Carter, Jr.** and others at

WAFIOS
WIRE-WORKING MACHINERY

Wire Netting Machines for Chain Link, Hexagonal Mesh, Poultry Netting, Field Fence. Crimping, Barb Wire and Staple Machines. Spring Coilers. Spring End Grinding Automatics. Loop Benders. Upholstery Spring and Wire Mattress Machines. Wire Nail Machinery. Chain Formers. Chain Welders. Straightening and Cutting Machines. Multi-Slide Wire and Strip Forming Machines. Special Machinery for the making of Paper Clips, Lock Washers, Bale Ties, Key Rings, Tin Openers, Wire Bag Ties, etc. Automatics for Flexible Metallic Tubing.

WAFIOS
SINCE 1893



MASCHINENFABRIK WAFIOS
WAGNER, FICKER & SCHMID REUTLINGEN 3 / WURTT. GERMANY

Johnson in Worcester. **Knut Hansen** from Aliquippa. **Bill Bauzenberger from Pittsburgh.** Elder perennials included **Earl Glen, Ken Beardsley, Jim Longwell, Bruce Siemon, Ken Lewis "Ham" Hamaker, Donna Sieman, Mrs. Chuck Orr, Tommy Spillet** (Syracuse's heavy weight contender since Joe Louis is out), **Henry Cordes** of Peoria, **Dan Neuman** of Monesson, **Glen Lee** in from Kokomo, **Mrs. Smigel** and **Kitty Crum.** And **Les Sommer** of Crawfordsville.

★ ★ ★

It's really impossible to name them all, for 560 men from America's four corners were on hand. There were wire mill men and consultants from all over the world, for that matter. The registration list looks like the lineup at United Nations in N. Y. C. All of which proves that the sessions, the fun, and "getting acquainted again" of these conventions are becoming more popular each and every year. Keep up the good work and planning, Major Brown!

★ ★ ★

So it's off to Pittsburgh next Spring for the Regional Wire Meeting May 8-9, 1952. We'll promise you a fine Golden Triangle welcome here. You'll be amazed at the "new city" we are creating here out of the old! New buildings (U. S. Steel's 43 floor deal is no cabin in the pines), new office buildings at the Point and the new Alcoa Building's miles of new highways. We think you'll like it. Los Angeles Regional will be June 12-13, 1952. Then comes November 1952—mark your calendar now—it'll be Cleveland for the annual show.

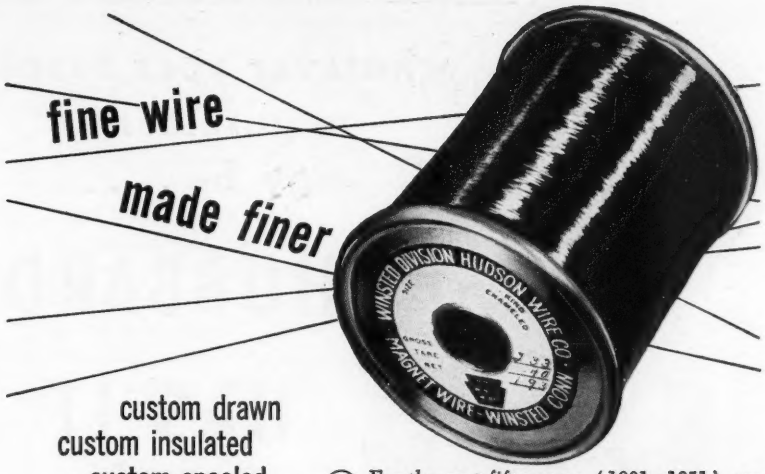
★ ★ ★

There's a good convention town too. November 10-13. Thus the "Human Side of the Noose" is completed. A noose is a loop, isn't it? There's the Loop in Chicago where we were, am I right? So let's close up this informal record of our doings in Chicago for 1951.

★ ★ ★

At this particular time, if my calendar is still correct, it might be well to express Sincere Christmas Greetings to All—from one of the country's most amateur reporters.

★ ★ ★



custom drawn
custom insulated
custom spooled
to your most exacting requirements

◎ For the past fifty years (1901 - 1951) we have specialized in "Fine Wire Made Finer." That is why Hudson-Winsted fine wires are the first choice of electrical, radio, television and electronic manufacturers whose products are noted for performance, reliability and long life.

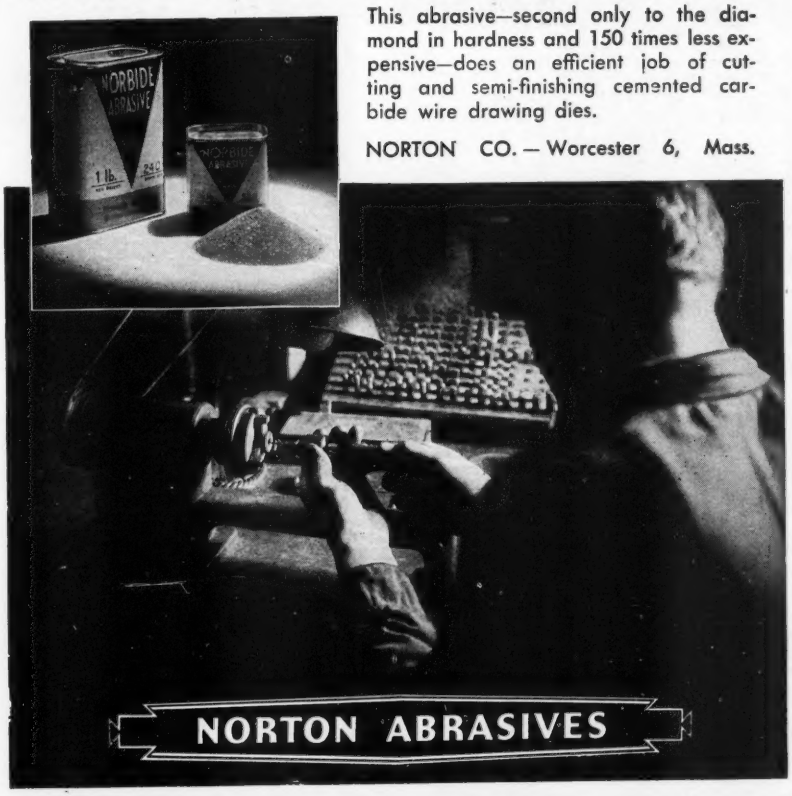
Tell us your wire problems and requirements. Our research, engineering and production facilities are at your disposal. Let us quote!

So just specify the electrical properties, flexibility, tensile strength, laying speed, uniformity and other characteristics you must have. Our Hudson and Winsted Divisions will meet and maintain your specifications.

HUDSON WIRE COMPANY HUDCO Winco

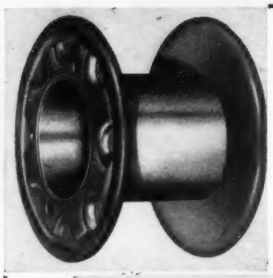
GENERAL OFFICES: OSSINING, N. Y. • WINSTED DIVISION: WINSTED, CONN.

NORBIDE Abrasive: Effective, Economical



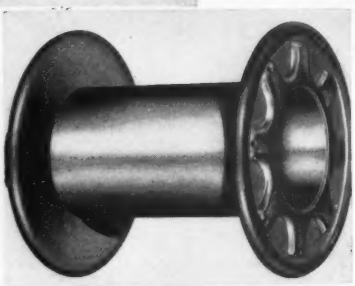
This abrasive—second only to the diamond in hardness and 150 times less expensive—does an efficient job of cutting and semi-finishing cemented carbide wire drawing dies.

NORTON CO. — Worcester 6, Mass.



whatever your spool requirement may be . . . .

HUBBARD HAS IT



FOR EXAMPLE . . . if you require process spools, perhaps Hubbard Steel Process Spools will meet your need exactly. They provide extreme rigidity, are accurately balanced, and are built in all standard sizes for wire drawing and processing.

Whatever your requirements may be, remember Hubbard.

Write for information and prices.

HUBBARD SPOOL COMPANY

Garrett, Indiana

Phone: GARRETT 840

Hubbard

STEEL SPOOLS AND REELS . . . METAL BOUND SPOOLS AND REELS . . . STEEL TRAVERSES . . . LIGHT WEIGHT REELS . . . WOOD REELS

AETNA-STANDARD WIRE DRAWING UNIT

- DESIGNED FOR COMPLETE VERSATILITY
- BUILT FOR SAFE, EFFICIENT PRODUCTION
- SINGLE OR MULTI-DRAFT OPERATION
- INTERCHANGEABLE UNITS AND PARTS
- AUTO-RHEOSTATIC SYNCHRONIZATION
- WATER COOLED BLOCKS AND DIES

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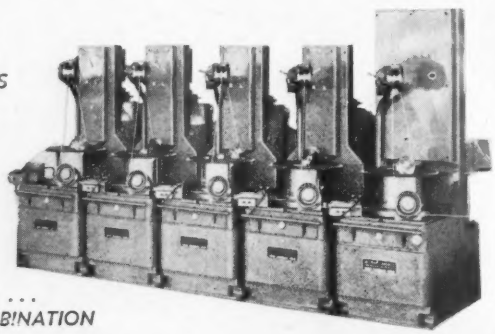


WET OR DRY LUBRICANTS

SINGLE UNIT . . . OR ANY COMBINATION

THE AETNA-STANDARD ENGINEERING CO.

PITTSBURGH, PA.

ASSOCIATED COMPANIES: HEAD, WRIGHTSON & COMPANY, LTD., THORNABY-ON-TEES, ENGLAND

AETNA-STANDARD ENGINEERING COMPANY, LTD. . . . . TORONTO, ONTARIO, CANADA

Carbide Guards Cut Repair Time and Cost Over 90% Per Year on Wire De-Reeling Fixtures

An annual reduction of 91% in maintenance time for a battery of wire de-reeling fixtures was recently made in an electric motor plant of the **General Electric Company** as the result of switching first from oil-hardened and cyanided steel eyes to ceramic guides and then to Carboloy cemented carbide wire guides. Shown in the accompanying illustration are the two steps in the improvement. While the ceramic eyes gave somewhat better life than the steel eyes, they were found to shatter too easily. The standard Carboloy cemented carbide guide rings are silver soldered directly to the arm instead of bending the arm around the guide as with the ceramic eyes.

★ ★ ★

On enameled magnet wire, the carbide guides show no wear after 3 years of service. On glass-covered wire a slight wear was noticed after one year—corrected by simply turning the guide and resoldering. Due to the original high polish on the carbide guides, special surface finishing is found unnecessary.

★ ★ ★

Cherry Rivet Adds New High Strength Fastener to Line

The Cherry Rivet Company, Los Angeles, Cal., a Division of **Townsend Company,** announced the recent addition of Lock Bolts to their broad line of blind rivets and structural fasteners. Lock Bolts are high strength, two-piece fasteners, consisting of a pin and a collar. The pin is inserted in the work from one side, and the collar slipped onto the pin from the opposite side. A special pneumatic tool installs the Lock Bolt.

★ ★ ★

The manufacturer states that Lock as rapidly as conventional bolts and Bolts can be installed at least twice nuts. Hole tolerances for an interference fit exceed those of AN bolts. This eliminates reaming. When installed, Lock Bolts weigh only 50% of an equivalent sized bolt and nut. Strength values are equal to or

greater than same-sized AN bolts.

★ ★ ★

Of particular importance is the Lock Bolt's clinching action. On installation, the Lock Bolt clamps the material being fastened tightly together, and clinches it under tension. This clamping action will pull together a gap between sheets of as much as ¼", it was stated.

★ ★ ★

New Booklet on Use of Pallet Boxes

General Box Company of Chicago has a new booklet suggesting three ways that Pallet Boxes may be used to cut costs in handling, storing, or shipping of material. Together with the story of how design engineering can substantially reduce shipping weight and packing time. A free copy is yours for the asking.

★ ★ ★

Pictorial Presentation of Barrett Handling Equipment

Bulletin 5191, just published, illustrates and briefly describes the principal units in the comprehensive Barrett line of equipment for the floor level handling of materials. This line has been "rounded out" by the acquisition earlier in the year of the **Crescent Truck Company** line of electric industrial trucks and tractors, which are also shown in the new bulletin.

★ ★ ★

The equipment illustrated includes: electric high lift fork trucks of both rider and "walkie" type; electric high lift platform trucks; electric lift trucks for skids and for pallets; electric tractors—both rider and walkie types; hand lift trucks, including the company's latest hydraulic models; "steeleg" skids; the Nifty lifter system; portable elevators—both hand and electrically operated; steel storage racks; hand trucks; and materials handling specialties.

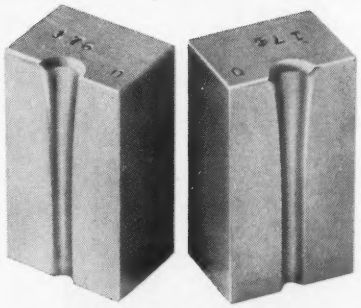
★ ★ ★

Bulletin 5191 will be mailed upon request by **Barrett-Cravens Co.**, 4609 S. Western Blvd., Chicago 9, Ill.

★ ★ ★

Sjogren POINTING DIES

SJOGREN Pointing Dies have proven themselves! Made from shock-resisting high grade steel they assure many hours of hard, continuous usage. Fit your swaging machines with these rugged, S & S Pointing Dies, made to order on your specifications, they guarantee you service.



SINCE S&S 1927

Used by Wire Men Who Want the Best!

SJOGREN TOOL AND MACHINE CO., INC.

WIRE PULLERS • WEDGE GRIPS • JAWS FOR ALL MAKES OF PULLERS AND TESTING MACHINES • CAGE ROLLERS • SWAGING HAMMERS • POINTING DIES • WIRE SPOOLERS

14 SWORD STREET
AUBURN
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Represented in Canada by THE LARSON CO., 98 Wellington St., West, Toronto, Ont.

MORE PRODUCTION with CARL-MAYER HI-SPEED ROD BAKERS - OVENS - FURNACES

PATENT NO's.
U.S. 2,235,559
" 2,296,361
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396,144
401,589

Patented

TYPICAL HI-SPEED ROD BAKER — DIRECT OR INDIRECT HEAT — ANY FUEL
WRITE for BULLETIN No. 350

Growing interest in our type of equipment is evidenced by Carl-Mayer installations for such plants as:--

American Steel & Wire Co.
Atlantic Wire Co.
Atlas Steel Co.
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B. Greening Wire Co.
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Frost Steel & Wire Co. Ltd.
Gary Screw & Bolt
Hollup Corp.
Indiana Steel & Wire Co.
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Jones & Laughlin Steel Corp.
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THE CARL-MAYER CORPORATION
3030 EUCLID AVENUE
CLEVELAND, OHIO

Lapping Carbide 20% Faster!

Carbide spray nozzle orifices are finished to tolerances of .0005" at Spraying Systems Company, Bellwood, Illinois. New Elgin DYMO-C diamond abrasive used in place of diamond powder-oil mixture produces more pieces per hour and conserves diamond, too!

ELGIN DYMO-C*

diamond abrasives

*C FOR CARBIDE

Here is a complete new diamond abrasive specially prepared to speed carbide finishing operations. It cuts faster, won't work back on the lap, won't settle and comes ready to use without time-consuming mixing. Write for complete information—ask for a free demonstration.

ALL ELGIN DIAMOND ABRASIVES ARE COMPLETELY PRODUCED BY ELGIN AND CERTIFIED TO CONFORM TO U. S. BUREAU OF STANDARDS SPECIFICATIONS.

ABRASIVES DIVISION

ELGIN NATIONAL WATCH CO.

ELGIN, ILLINOIS

Pangborn Announces New Demonstration Room

So that potential users can see blast cleaning and dust control equipment in operation, the **Pangborn Corporation** has inaugurated a new Demonstration Room at its plant in Hagerstown, Maryland. The room is 58 by 61-feet in size.

★ ★ ★

The reason for the room is to enable potential users of blast cleaning and dust control equipment to send or bring samples of work to Hagerstown and have it processed by Pangborn machines. In this manner they can determine which is the best piece of equipment to fit their needs. Also, an operating display of this type shows design, production, and plant engineers how this equipment can physically be fitted into their specific process.

★ ★ ★

The new room is under the supervision of Ralph R. Garver, a Pangborn engineer of 36 years experience.

★ ★ ★

Rolock Catalog Available

Rolock Incorporated, Fairfield, Conn., offers a new catalog, No. B-8, which contains descriptions and photographs of 75 custom-built Fabricated Alloy Heat Treating baskets, crates, racks, retorts, trays, muffles, fixtures, etc.

★ ★ ★

Featured is Rolock's new "Serpentine" Grid, an articulated design developed to meet the need for a grid that will retain its shape in high temperature heat treating operations yet be light in construction and reasonable in cost. It may be used as a brazing tray, or, with superstructures added, as a furnace basket for annealing, pickling, quenching, etc.

★ ★ ★

Drop-bottom baskets, pit type stacking baskets, nesting and lift post assemblies of heat and corrosion resistant alloys complete a line for use in Dry heat (horizontal and vertical furnaces) and Salt bath operations. Copy of catalog on request.

SAVE TIN!

with

STANNOUS SULFATE

Use of Stannous Sulfate for liquor finishing baths saves tin, assures more efficient processing.

for ALL LIQUOR FINISHING of STEEL WIRE

white or straw color

M & T Stannous Sulfate provides these advantages:

- Reduces tin losses by eliminating the high tin sludging common to the acidulated feather tin process.
- Makes it easier to control results because only two variables (the Stannous Sulfate and Copper Sulfate concentrations), require watching.
- Produces smooth, uniform, wire coatings from day to day and from lot to lot.

Write for engineering data on the use of Stannous Sulfate in liquor finishing operations.

METAL & THERMIT CORPORATION

Specialists in Tin and Tin Chemicals

100 East 42nd Street • New York 17, N. Y.

A NAME YOU CAN DEPEND ON!

In these days of highly complex cable coating requirements, a dependable source of supply is important!

That's why more and more U. S. wire manufacturers are turning to the firm that specializes in producing lacquers for the insulated wire industry—the New England Lacquer Company.

Our technical specialists are ready to work with you at any time—to help solve *your* lacquer problems. Write for details!

The above photograph is one of many contained in an eight-page brochure describing our facilities to serve you. Write for your copy of the complete brochure!

NEW ENGLAND LACQUER CO.
150 KING PHILIP ROAD
EAST PROVIDENCE, R. I.

New Silicone Rubber Cloth for Cable Insulation Announced

Silicone rubber treated glass cloth for motor and cable insulation is now in production at **General Electric's** Coshocton, Ohio, plant, it was announced by **H. K. Collins**, manager of the Chemical Division's Laminated and Insulating Products Department.

★ ★ ★

In the dipping process that is used, Mr. Collins said that glass cloth is passed through a liquid solution of silicone rubber. After the application of heat to cure the rubber, the treated fabric is ready for use. The process is continuous.

★ ★ ★

The chief use of silicone rubber treated glass cloth at present is for motor and cable insulation. Having high heat resistance and excellent flexibility and electrical properties, the material is ideal for these applications. It is anticipated that other uses will be developed in the electric industry and requirements for defense applications may require substantial quantities.

★ ★ ★

Thirty-six inch widths from four to ten mils in thickness are being produced at the Coshocton plant. Although the combination of silicone rubber with glass cloth was developed several years ago, the important improvements made in silicone rubber formulations in the past year now enable a far superior product to be made that should prove a valuable asset in electric insulating applications.

★ ★ ★

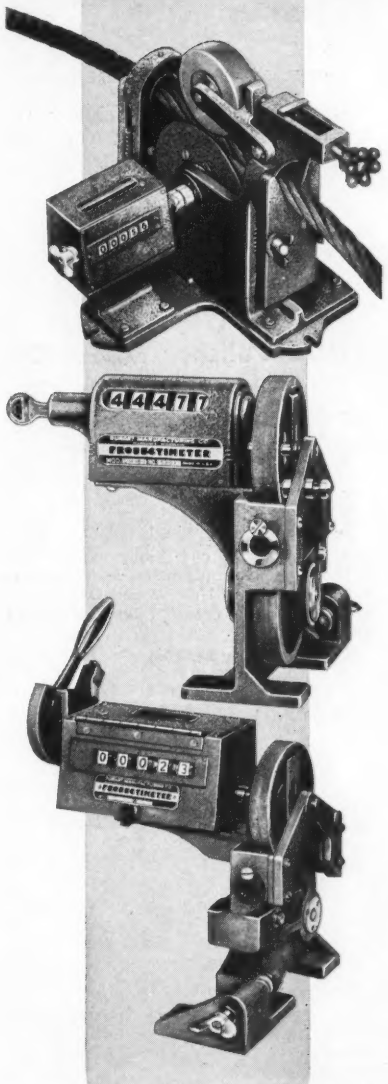
"Houghton's Government Specification Products"

To simplify for industrial plant men the selection of products complying with government specifications, **E. F. Houghton & Co.**, has issued an 8-page booklet entitled, "Houghton's Government Specification Products."

★ ★ ★

This handy reference contains the listing of all Houghton products

PRODUCTIMETER
WIRE MEASURING MACHINES
Fast . . Accurate . . Dependable . . Legible



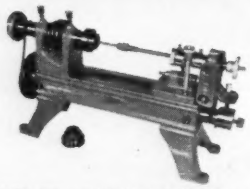
Productimeters measure all types of wire from .010 to 1½ inches in diameter . . . at speeds up to 5,000 feet per minute. They eliminate "guess-work". . . insure profitable operation in your plant.

Send for Catalog No. 40

DURANT MFG. CO.
1918 N. Buffum St. Milwaukee 1, Wis.
118 Orange St. Providence 3, R. I.
Representatives in Principal Cities

PRODUCTIMETERS
SINCE 1879 *Count Everything*

NEW ROOS
DIE ROOM EQUIPMENT
SEMI-AUTOMATIC POLISHER



MODEL OT — PATENT REGISTERED AND APPLIED FOR

Note these outstanding features for greater accuracy in polishing dies and for prolonged machine life!
(a) Quick opening spindle
(b) Pressure adjustor
(c) New cam assembly
(d) New style leather belt

NEW STYLE TAILSTOCK
To Fit Other Model ROOS Polisher Model OT

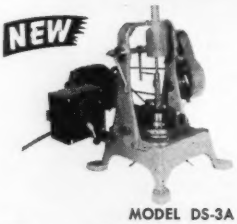
NEW

MODEL OT

You can quickly and easily replace the tailstock on your old Roos Semi-Automatic Polisher with the New Model OT-Tailstock. Quotation on this new Tailstock furnished on request.

ROOS
AUTOMATIC DIE SHAPING MACHINE

NEW



MODEL DS-3A

Offers you three improved features: a die rotating attachment; a time switch; and a reversing switch—which provide these advantages:
1. Die rotating attachment and time switch eliminate the formerly necessary constant attention by operator. Rotation of die is automatic, and machine shuts off automatically at end of time cycle.
2. Reversing switch permits rotation of the die in either direction.

Write today for full information!

ROOS TOOL
& MFG. COMPANY
17-19 Grove Street
Montclair, New Jersey

meeting governmental specifications in the following classes: rust preventives, lubricants, metal working aids, cutting oils, and leather and synthetic rubber products. The listing includes the specification number and the name and description of the approved Houghton product.

★ ★ ★

For a free copy of this helpful booklet, write to E. F. Houghton & Co., 303 W. Lehigh Avenue, Philadelphia 33, Pa.

★ ★ ★

New Paper Container for Nails

(*Continued from page* 1145)

rough treatment in shipment and arrive safely at its destination. Thousands of these packages have been thrown, kicked, and even dropped from heights of fifteen feet without loss of contents. So far as we know, there never has been a damage claim made against the common carriers. The flanged cap one-piece construction at the top and bottom vital areas is the reason for its dependability.

★ ★ ★

Of much importance today, with every jobber and manufacturer short for warehouse space, is the reduction of space needed to store the nail inventory. Because of its square shape, the KEG-IT requires approximately 25% less floor space. This figure is conservative, and actually the saving in space alone is more than that, due to the fact that the package can be better utilized on the pallet in double tiering of the containers. The pallet loads make neat, firm, and high stacks in the warehouses. Of importance also is the side marking of the nail contents, which aids in identification and speeds the taking of inventories. It also speeds the correct selection of stock to fill orders and eliminates the chance for mistake in this respect. Of course the product identification is always retained for the life of the box, as the two sides as well as the top, are marked.

★ ★ ★

The box realizes a considerable saving in tare weight—it weighs approximately four pounds less. With rising freight costs, the savings in freight alone add up to a tidy sum

PHILIPS
Master-Made
DIAMOND DIES

Product of MODERN SCIENCE and MASTER CRAFTSMANSHIP

● The tools of modern science are combined with the skills of the master craftsman in the production of PHILIPS *master-made* Diamond Dies.

Every diamond selected for cutting is examined by PHILIPS X-ray diffraction apparatus to determine the proper direction for drilling to provide longer life and greater satisfaction to the user. Master craftsmen of long experience, working under the most modern conditions, drill each diamond to precision tolerances. Result? The finest diamond dies obtainable—now available to American industry under the trade name of NORELCO Diamond Dies.

All sizes . . . from .000275 to .100 are available at competitive prices. Let us consult with you concerning your requirements.

Norelco

NORTH AMERICAN PHILIPS COMPANY, INC.
Dept. FE-12, 100 East 42nd St., New York 17, N. Y.

even in the smallest operation. If you add to this figure the savings through elimination of breakage and its attendant labor, you can see why the package has been so successful in such a short period of time.

★ ★ ★

There are many other things that could be mentioned in connection with jobber use, such as the importance of brand name merchandising of nails—which heretofor has been practically impossible because low cost, two color printing on sides as well as the top, was not available for kegs. The brand name now is always out in front and affords the important and needed tie-in with the nail producers advertising program.

★ ★ ★

The safety features of the package cannot be stressed enough; the fact that the box stays where it is placed on a truck or in a car, and does not break loose; the fact that it will not roll off of a pallet while the pallet is being carried by a lift truck,—all of these things add up to SAFE HANDLING.

★ ★ ★

Undoubtedly in the years to come there will be many more improvements made in the use of this container by the Nail Industry. It seems destined to hold the operating department's attention for sometime as new, quick methods are worked out to further realize the savings potential. But in any event, we are all indebted to the first users of the KEG-IT package for nails, for it was by their foresight and efforts that the accomplishments were made.

★ ★ ★

The Aluminum Situation

(*Continued from page* 1139)

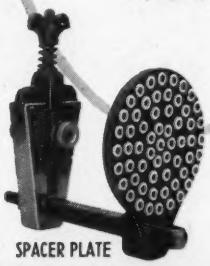
eighth line to the Mead plant in Spokane, Washington will account for 40 million pounds, with operation of these facilities scheduled to begin the middle of next year. Half of the remaining 400 million pounds of allocated new capacity will be in a new four-line plant under construction at Chalmette, near New Orleans, Louisiana. This plant will use natural gas to fuel Diesel engines for power generation. The

LIFTING AN ELEPHANT IS NOT IMPOSSIBLE

...and here's how to

GIVE YOUR PRODUCTION A NEEDED LIFT

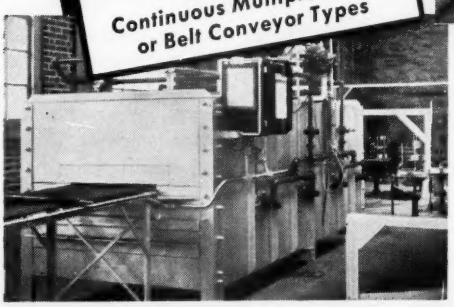
Maybe YOU are trying to "lift" nothing but your output . . . or the *quality* of what you make; and if you make paper cord, shopping bag handles, wire, rope, cord, twine or thread the solution to your problem may be the installation of new, improved H-D equipment. *Worth investigating,* surely! Here you have equipment of proven performance—the result of eighty-two years' "know-how." Write TODAY for our new bulletins on twisters, ropers, layers, etc.

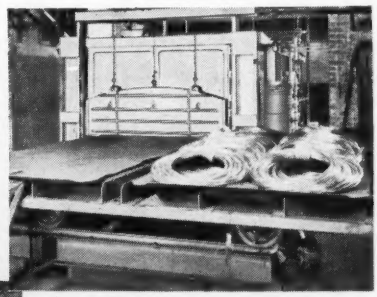


SPACER PLATE

HASKELL-DAWES MACHINE CO., INC.
2231 E. ONTARIO ST.,
PHILADELPHIA 34, PA.

ROCKWELL FURNACES
Gas · Oil · Electric
Direct·Muffle·Atmosphere
Batch Pan—Car—Pit or Hood Types
Continuous Multiple Strand or Belt Conveyor Types





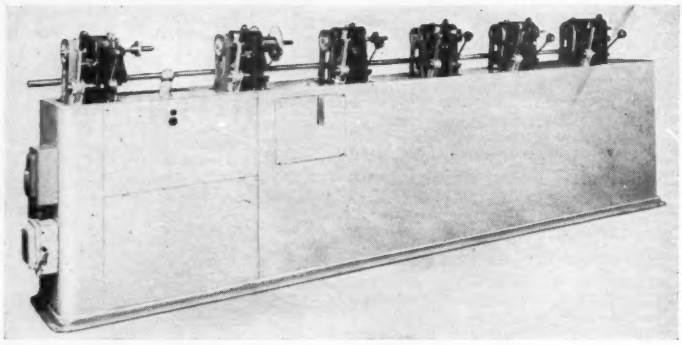
Gas-fired, atmosphere controlled, pan type batch furnace for annealing brass wire in coils.

Gas-fired furnace for bright annealing steel, stainless steel and non-ferrous wire running continuously through tubes in furnace.

ROCKWELL ALSO BUILDS *Coil winding machines, reels and spools; pickling, brushing, cleaning, washing, finishing, drying and handling equipment; ovens and dryers; special fabrications; non-ferrous rod mills.*

ROCKWELL SINCE 1888 BUILT

FURNACES · OVENS · SPECIAL MACHINERY
W. S. ROCKWELL COMPANY
242 ELIOT STREET · FAIRFIELD, CONN.
In Canada: Francis Hankin & Co., Ltd. Montreal & Toronto



NO. 1900K MULTIPLE SPINDLE SPOOLER

This spooler is outstanding for its many unusual and desirable features.

Takes spools up to 16" flange diameter. Enclosed types, with mechanism readily accessible from rear side. Spindles mounted on ball bearings and each may be stopped or started individually. Uses Worthington All-Speed Drive unit.

All Emory Spoolers supplied standard or equipped to meet customers' special specifications.

On Spooling problems, consult

ROBERT J. EMORY COMPANY

31 EAST RUNYON STREET NEWARK 5, NEW JERSEY

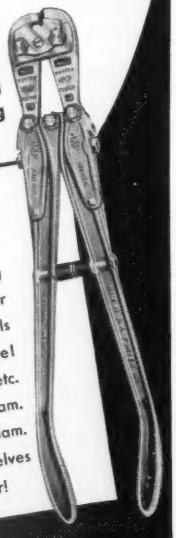
Top quality non-returnable spools . . available in standard head and barrel sizes.

Write for a quotation today!

MASON CAN COMPANY
1949 Dexter Rd., East Providence 14, R. I.
MASON CAN COMPANY OF OHIO
Greenville, Ohio

PORTER CARBIDE-EDGED CUTTERS

for extremely hard materials, including stainless steel.



Stand up under the hardest usage. Tough carbide edges firmly brazed to cutting jaws. Excellent for extra hard materials like stainless steel rods, wires, pins, etc. #3 cuts to 5/16" diam. #4 cuts to 3/8" diam. Pay for themselves many times over!

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Manufacturers of PORTER CUTTERS, PORTER PRUNERS and PORTER-FERGUSON Auto Body Fender Repair Tools

first lines are scheduled to be placed in operation later this year, and the other lines early in 1952. The other 200 million pounds will probably be a four-line addition to the New Orleans plant. It is reported that these facilities will employ steam-generated power, with natural gas being used as fuel for the boilers. An estimated 15 months would be required from the time construction starts before such a plant could begin operating.

★ ★ ★

The remaining 108 million pounds of authorized capacity in the expansion program was allocated to the **Harvey Machine Company**, which has been an aluminum fabricator but never a producer of the metal. Harvey has announced plans to build a new plant at Kalispell, Montana where power would be obtained from the Hungry Horse Dam development. However, the Interior Department has withdrawn approval of a loan granted Harvey by the Reconstruction Finance Corporation pending further investigation, with the result that financing difficulties have precluded the start of construction on the Kalispell plant. Several other companies are known to be interested in taking over the Harvey allocation, so it is reasonable to assume that there will be a fourth producer in the aluminum smelting field in the future. A plant of the allocated size could probably be in production within a year after construction began.

★ ★ ★

In addition to the previously described program to increase the Nation's permanent smelting capacity, last November the Government also contracted with Alcoa to reactivate high-cost standby facilities at existing plants in Massena, New York, and Badin, North Carolina. The General Services Administration purchases the entire output of these reactivated facilities, which can produce approximately 158 million pounds yearly, for a portion of the defense stockpile. The reactivation of these high-cost facilities, which operate with power costs in excess of those normally economical, represents an emergency "quick-action" plan to build up the Government's aluminum reserves rapidly.

In fact, just five days after signing the agreement with the Government, Alcoa delivered to GSA the first aluminum pig made in these facilities. All have now been reactivated, and their output is helping to relieve the stockpiling burden of the three producers and free more metal for other purposes.

★ ★ ★

The present aluminum shortage should be relieved considerably during the next two years as the facilities now under construction get into operation. Naturally, this optimism is based on the assumption that the United States will not become involved in a total war requiring an all-out military effort. Although estimates on production are extremely hazardous, a look into the crystal ball reveals encouraging statistics on the future supply of new metal.

★ ★ ★

Primary aluminum production in the United States this year should reach 1,650 million pounds, or about 200 million pounds more than last year. Assuming that the entire expansion program is carried to completion and construction proceeds on schedule, production in 1952 should set a new all-time high of more than 2 billion pounds, or about 200 million pounds above the peak achieved during World War II. This new record will be of short duration, however, because in 1953 the industry will possibly shatter it by as much as 600 million pounds. And, in 1954, the output of aluminum may exceed the World War II peak by as much as a billion pounds.

★ ★ ★

Only time will tell whether these predictions prove accurate, but even if they fall short, the fact remains that there's going to be a lot more aluminum available in the years ahead. When the current expansion is completed, 95% of the industry's smelting facilities will be capable of economical operation, giving the country a permanent aluminum production capacity twice as great as that which existed at the end of World War II. This fact not only establishes a firm foundation for the continued growth of the industry, but also gives encouragement to the wider utilization of aluminum to meet the Nation's future peacetime needs.

★ ★ ★

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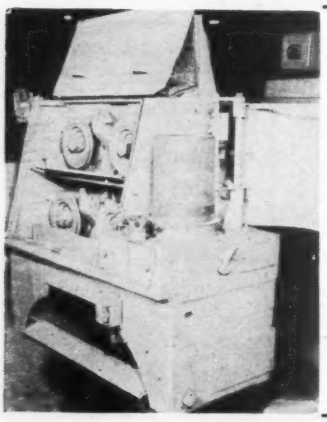
SIZE: coils, spools or straightened cut to length.
FINISH: plain, galvanized, coppered or tinned.
TYPE: stone wire, bookbinder, flat, etc.

WICKWIRE BROTHERS, INC. CORTLAND, N.Y.



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8" or 12" Diam. Finishing Blocks
Max. Size: .0915" • Min. Size: .006"
2 Sets of Capstans • 25 h.p. Drive Motors
One Set for 12 Hole 25% Reduction
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Drawing Speed 2500 ft. for Ferrous Wire;
For Non-Ferrous Approx. F.P.M.

WIRE & TEXTILE MACHINERY, INC.

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WE BUY — WE SELL

Carboloy Announces New Metals

A vast broadening of the sphere of its activities was revealed by **Carboloy Department of General Electric Company,** Detroit 32, at the opening of the World Metallurgical Congress and Metals Exposition, in Detroit, October 15th.

★ ★ ★

While retaining its position as the world's largest producer of cemented tungsten carbide, the Carboloy organization is developing a wide variety of new products and metallurgical materials. These promise to expand its field of activities into almost every conceivable industry. All of them are basically specialized man-created metals just as are cemented carbides.

★ ★ ★

Not all of them are yet "ready for the market", it was made clear. In general, the Carboloy organization divides its products into four groups:

1. **Established products. This group already includes tungsten carbide, permanent magnet metals, and Hevimet (used to resist penetration of radioactive rays and for counter-balance weights in flywheels, etc.)**
2. **Products which have been field tested in pilot plant production and for which quantity output is planned. In this group are:**
   (a) **The highly promising new chrome-carbide metals characterized by extremely high resistance to all forms of wear. These metals require no strategic tungsten or cobalt.**
3. **Products which are out of the laboratory stage and in the "engineering appraisal" stage. In this group, the following were shown in Detroit:**
   (b) **Bearing metals. Tests indicate that cemented carbides will serve as bearing metals at loads, speeds and temperatures well beyond the range of conventional bearing metals.**
   (c) **Titanium carbide. Developed primarily for possible high-temperature applications.**
   (d) **Thermistors. Metal-ceramic resistors for use in many kinds of instruments, controls, meters and in electrical systems for controlling or measuring temperatures.**
   (e) **Cemented carbide "welding" rod. A development which may make possible the coating of iron and steel (and possibly other metals) with a skin of ultra-hard wear-resisting carbide metal.**
4. **The fourth group of developments by the Carboloy Department are products still in the Research Laboratory stage. Such products of course cannot be revealed until basic research has been completed. Only research activity actually disclosed at the Metals Show was work on experimental machining at far higher speeds than normal in industry today.**

★ ★ ★

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Made in 12" to 24" diameters.

No nails used. *All glued construction.* Made of kiln-dried wood. Special design prevents breaking or splintering of wood, protecting insulated wire from damage.

Write for details

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FORGE ROAD • WESTPORT • MASS.
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It is quite evident however that the Carboloy organization is not depending on new products alone for its continued development, for in its oldest field — tungsten carbide— there are new applications being found constantly.

★ ★ ★

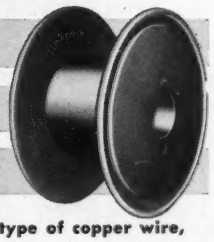
U. S. Rubber Develops New Splicing Method for Cable

A new method of splicing steel cable conveyor belting, developed and patented by **The B. F. Goodrich Company,** Akron, Ohio, places all cables under equal tension during vulcanization so that each cable carries its share of the load in the finished splice. The new method also permits the straightest possible splice, resulting in belts that track straight and true for economical, trouble-free operation. Laboratory stress-strain tests prove that the splice is as strong as anywhere else in the belt.

★ ★ ★

Apco...

SPOOLS
REELS
BOBBINS



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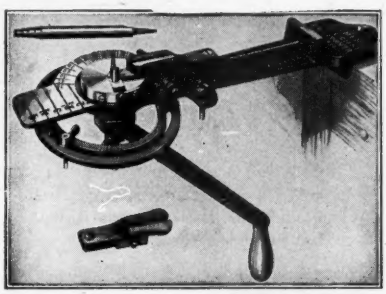

- Forms Eleven Sizes of Eyes from Flat, Round, Square or Half - Round Stock, also Almost Any Shape Desired
- **Adjustable for No. 3 to No. 21 Gage Wire**

The cut on right shows a few of the thousands of the forms made on this **WIRE FORMER**

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SMALL WOOD SPOOLS *for* WIRE

Range of Sizes:
1" long with ¾" head diam.
up to
3½" long with 2⅛" head diam.

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"NOWASCO" WOOD SPOOLS are used by many wire manufacturers for wire prepared for retail sale.

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Bridgeport Brass to Make Aluminum Products

Shortage of copper and zinc is responsible for brass and copper mills further entry in the aluminum fabricating field.

★ ★ ★

The Latest move is by **Bridgeport Brass Co.**, Bridgeport, Conn., which is going to start converting aluminum ingots into finished products. The company will buy ingots from the large aluminum producers for melting down and conversion into aluminum alloys in various semi-finished forms. Semifinished aluminum will then be processed further into products such as sheet, rod and wire.

★ ★ ★

Bridgeport Brass, a large independent brass and copper mill, is dependent on the producers of copper. Because of the copper and zinc shortage, fabricators dependent on others for a copper supply have been turning to alternate materials. Fabrication of aluminum is quite similar

BORAX

An increasingly popular and satisfactory coating material for the dry drawing of ferrous wire

The acceptance of Borax as a coating material by an increasing number of the larger manufacturers of dry drawn ferrous wire is a testimonial to its effectiveness and satisfactory performance.

BORAX
- **—is clean, safe, and easy to handle.**
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- **—coating gives protection to wire against rusting, permitting storage of coated wire for longer periods.**
- **—is reported as giving increased die life.**

Give Borax a trial. Improved results have been obtained by using higher concentrations, some using as high as 30 to 40 ounces per gallon.

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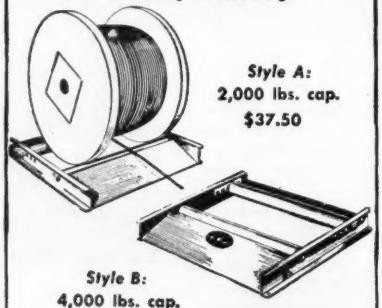
enables you to reel or unreel wire, cable, rope . . . easily, quickly . . . economically.

Adjustable slots for wide variety of reel sizes. Strong . . . with low slanted front and positive front lock for loading or unloading.



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to that of copper and brass products and fits in well with copper and brass mill equipment and operations.

★ ★ ★

The company says the supplementing of its brass and copper mill production with aluminum will not mean any broad program of plant and equipment expansion now.

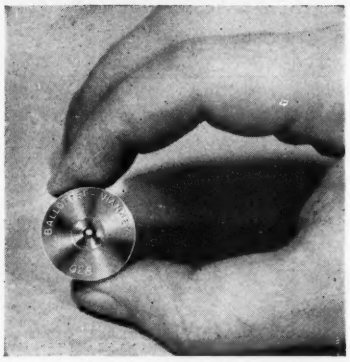
★ ★ ★

In announcing this new development, Bridgeport Brass says: "With the present huge demand for copper and zinc for defense purposes, the long range outlook for added sources of supply of these semi-precious metals is such that it is wise for the company to supplement its present field of operations." This action is akin to that which Defense Production Administrator Manly Fleischmann suggested last week. He said the outlook for a copper supply is such that users of copper should consider switching to some other material.

A Correction

In the **Hubbard Spool Company's** advertisement on page 980 of the October issue of WIRE AND WIRE PRODUCTS, the old address on Carroll Avenue in Chicago was inadvertently used. The correct address is now: **Garret, Indiana.** We regret the error and trust that it has not caused our good friends Eber and Laurie Hubbard—or their customers—any inconvenience.

BALLOFFET VIANNEY WIRE DIE CO., Inc.



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Outstanding in quality, workmanship and service.
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The TORRINGTON
MANUFACTURING COMPANY TORRINGTON, CONNECTICUT

Model of Laboratory In Which Nickel was Discovered 200 Years Ago

One of the features of **International Nickel's display** at the National Metal Exposition held in Detroit in October was a scale model of the laboratory in which, 200 years ago, the Swedish scientist **Axel F. Cronstedt** isolated and discovered the element nickel. The model was created by **F. Broun-Morison** of England for **The Mond Nickel Company Limited**, the United Kingdom affiliate of Inco, in commemoration of the bicentennial of the discovery of nickel.

★ ★ ★

Although the open measurements of the model are only 22 inches by 7 inches, some hundreds of authenticated items in miniature are included. The design and contents of the model are based upon records in The Royal Institution, The Science Museum Library and the British Museum, and details of clothing were provided by the Swedish National Museum.

★ ★ ★

"Better Electroplating on Steel"

Oakite Products, Inc., New York, manufacturers of specialized cleaning and allied materials, have published a 28-page illustrated booklet, "Four Good Steps Toward Better Electroplating on Steel," giving recommendations for effecting improvements in cleaning steel before electroplating.

★ ★ ★

Booklet lists in detail the benefits to be gained by: (1) precleaning more thoroughly; (2) rinsing more thoroughly; (3) using reverse current cleaning for all electrocleaning of steel; and (4) using an efficient electrocleaner that provides high conductivity.

★ ★ ★

Also of interest to platers are the answers presented in the booklet to such questions as: How can cleaning costs be reduced 33% while plating quality is being improved? What are four easy ways to improve the average rinse tank? What rins-

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(TEAR OUT & MAIL WITH LETTERHEAD)

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Try this new diamond compound proved in actual field tests to reduce carbide die finishing time up to 20%
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Put *HEIL STEAM JET AGITATORS* to work for you
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NRM complete **WIRE COVERING** equipment
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EXTRUDERS FOR RUBBER AND PLASTICS INSULATION OF WIRE AND CABLE
1/16" TO 1-1/2" COVERED DIAMETER
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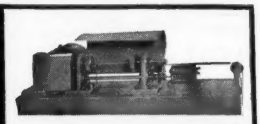
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Norton Co., Worcester, Mass.

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(See Inhibitors, Pickling)

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Chemsteel Construction Co., Pittsburgh, Pa.
Haveg Corporation, Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio.

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Syncro Machine Co., Perth Amboy, N. J.

ANNEALING POTS AND BOXES—
Scudder, E. J. Foundry & Mach. Co., Trenton, N.J.

ARMORING EQUIPMENT—
American Insulating Machy. Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

BAKERS—Rod and Wire
Carl-Mayer Corp., The, Cleveland, Ohio
Morgan Construction Co., Worcester, Mass.
Ross, J. O., Engr. Corp., New York, N. Y.

BAR STOCK—Stainless Steel
American Steel & Wire Company, Cleveland, Chicago, New York
U. S. Steel Corporation, New York, N. Y.

BOBBINS—Braider & Wire Weaving
Apco Mossberg Co., Attleboro, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Standard Mill Supply Co., Pawtucket, R. I.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

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Pacific Coast Borax Corp., New York, N. Y.

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Norton Co., Worcester, Mass.

BRAKES—Pneumatic
Entwistle, Jas. L. Co., Pawtucket, R. I.

CABLE LACQUERING OVENS—
Industrial Ovens, Inc., Cleveland, O.

CARRIERS—Braider, High Speed
Apco Mossberg Co., Attleboro, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
New England Butt Co., Providence, R. I.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

CASTINGS—Wire Mill
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.

CEMENTS—Acid Proof
Ceilcote Company, Cleveland, Ohio

CEMENTS—Refractory
Norton Co., Worcester, Mass.

CHEMICALS—Cleaning
(See Cleaners—Metal)

CLEANERS—Metal
American Chemical Paint Co., Ambler, Pa.
Apex Alkali Products Co., Phila., Pa.
Du Pont de Nemours, E. I. & Co., Electrochemical Dept., Wilmington, Del.
Houghton, E. F., Co., Philadelphia, Pa.
Magnus Chemical Co., Garwood, N. J.
Metal & Thermit Corp., New York, N. Y.
Oakite Products, Inc., New York, N. Y.
Parkin Chemical Company, The, Pittsburgh, Pa.
Standard Industrial Compounds Co., Chicago, Ill.

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Youngstown Welding & Engineering Co., Youngstown, Ohio

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Wickwire Bros., Cortland, N. Y.

COATING COMPOUNDS—
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Standard Industri l Compounds Co., Chicago, Ill.
Trembicki Co., The, Chicago, Ill.

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Torrington Mfg. Co., Torrington, Conn.
Wean Equipment Corp., Cleveland, O.

COLD HEADERS—
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COMPOUNDS—Coppering
American Chemical Paint Co., Ambler, Pa.

COMPOUNDS—Diamond
Ace Abrasive Laboratories, New York, N. Y.
Eastern Carbide Corp., New Rochelle, N. Y.
Elgin National Watch Co., Abrasives Division, Elgin, Ill.
Hyprez Div., Engis Equipment Co., Chicago, Ill.
Magnus Chemical Co., Garwood, N. J.

COMPOUNDS—For Improving Drawing and Extrusion
American Chemical Paint Co., Ambler, Pa.

COMPOUNDS—Metal Finishing
American Chemical Paint Co., Ambler, Pa.
Apex Alkali Products Co., Philadelphia, Pa.
Du Pont de Nemours, E. I. & Co., Electrochemical Dept., Wilmington, Del.
Metal & Thermit Corp., New York, N. Y.

COMPOUNDS—Phosphate Coating
American Chemical Paint Co., Ambler, Pa.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Trembicki Co., The, Chicago, Ill.

COMPOUNDS—Rust Preventing
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Apex Alkali Products Co., Philadelphia, Pa.
Houghton, E. F. & Co., Philadelphia, Pa.
Magnus Chemical Co., Garwood, N. J.
Oakite Products, Inc., New York, N. Y.

COMPOUNDS—Rust Removing
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Apex Alkali Products Co., Philadelphia, Pa.
Houghton, E. F. & Co., Philadelphia, Pa.
Oakite Products, Inc., New York, N. Y.
Standard Industrial Compounds Co., Chicago, Ill.

COMPOUNDS—Wire Drawing
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Houghton, E. F. & Co., Philadelphia, Pa.
Magnus Chemical Co., Garwood, N. J.
Miller, R. H. Co., Inc., Homer, N. Y.
Nopco Chemical Co., Harrison, N. J.
Oakite Products, Inc., New York, N. Y.
Pacific Coast Borax Corp., New York, N. Y.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.
Standard Industrial Compounds Co., Chicago, Ill.
Swift & Company, Chicago, Ill.
Trembicki Co., The, Chicago, Ill.

CONDUCTORS—Flexible, Electrical
Montgomery Co., The, Windsor Locks, Conn.

COPHOLDERS—Steel
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Mossberg Pressed Steel Corp., Attleboro, Mass.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

CORDS—Electrical, Tinsel Conductor
Montgomery Co., The, Windsor Locks, Conn.

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CRANES—Wire Mill
Cleveland Tramrail Div. of the Cleveland Crane & Engineering Co., Wickliffe, O.
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

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Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Metal Carbides Corporation, Youngstown, Ohio
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.

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Porter, H. K., Inc., Everett, Mass.

DIAMONDS—Industrial
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Wayne Wire Die Co., Hillside, N. J.

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Danforth, The C. W. Co., Youngstown, Ohio
Eastern Carbide Corp., New Rochelle, N. Y.
Elgin National Watch Co., Abrasives Division, Elgin, Ill.
Hyprez Div., Engis Equipment Co., Chicago, Ill.
Indiana Wire Die Co., Ft. Wayne, Ind.
National Research Company, St. Claire Shores, Mich.
New England Wire Die Co., Worcester, Mass.
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National Research Co., St. Claire Shores, Mich.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.

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Indiana Wire Die Co., Ft. Wayne, Ind.
Metal Carbides Corporation, Youngstown, Ohio
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Wayne Wire Die Co., Hillside, N. J.

DIES—Carbide
(See Dies—Tungsten Carbide)

DIES—Cold Heading
American Carbide Die Company, Union City, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Indiana Wire Die Co., Ft. Wayne, Ind.
Metal Carbides Corporation, Youngstown, Ohio.
Vascoloy-Ramet Corp., No. Chicago, Ill.

DIES—Diamond
Ajax Industrial Supplies, Inc., Fort Wayne, Ind.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Boulin, Victor J., New York, N. Y.
Cochaud Wire Die Corp., New York, N. Y.
Ft. Wayne Wire Die, Inc., Fort Wayne, Ind.
Indiana Wire Die Co., Ft. Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
New England Wire Die Co., Worcester, Mass.
North American Philips Co., Inc., New York, N.Y.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Wayne Wire Die Co., Hillside, N. J.

DIES—Extrusion
American Carbide Die Company, Union City, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
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Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Hartley Tool & Die Co., Thomaston, Conn.
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Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Wayne Wire Die Co., Hillside, N. J.

DIES—Eyelet
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Eastern Carbide Corp., New Rochelle, N. Y.
Hartley Tool & Die Co., Thomaston, Conn.
Kelly Wire Die Corp., New York, N. Y.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.

DIES—Pointing
Sjogren Tool and Machine Co., Auburn, Mass.

DIES—Repairs & Re-Cutting
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Ajax Industrial Supplies, Inc., Fort Wayne, Ind.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Boulin, Victor J., New York, N. Y.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Cochaud Wire Die Corp., New York, N. Y.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Ft. Wayne Wire Die, Inc., Fort Wayne, Ind.
Hartley Tool & Die Co., Thomaston, Conn.
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Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corporation, Youngstown, Ohio.
New England Wire Die Co., Worcester, Mass.
North American Philips Co., Inc., Allied Products Division, New York, N. Y.
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Vascoloy-Ramet Corp., North Chicago, Ill.
Wayne Wire Die Co., Hillside, N. J.

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Indiana Wire Die Co., Ft. W. yne, Ind.
Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.

DIES—Swaging
Murex, Ltd., Rainham, England
Sjogren Tool and Mach. Co., Inc., Auburn, Mass.

DIES—Tantalum Carbide
American Carbide Die Company, Union City, N. J.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corporation, Youngstown, Ohio
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.

DIES—Tube Drawing
American Carbide Die Company, Union City, N. J.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Hartley Tool & Die Co., Thomaston, Conn.
Indiana Wire Die Co., Fort Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corp., Youngstown, O.
Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.

DIES—Tungsten Carbide
American Carbide Die Company, Union City, N. J.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
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Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Hartley Tool & Die Co., Thomaston, Conn.
Kelly Wire Die Corp., New York, N. Y.
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Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.
Wayne Wire Die Co., Hillside, N. J.

DRAW BENCHES—
(See MACHINERY—Draw Benches)

DRUMS & TRAVERSES—Flange Steel
Entwistle, Jas. L. Co., Pawtucket, R. I.
Hubbard Spool Company, Garrett, Indiana
Niles Steel Products Division, Republic Steel Corporation, Niles, Ohio

DRUMS—Vulcanizing
Mossberg Pressed Steel Corp., Attleboro, Mass.
Watson Machine Co., The, Paterson, N. J.

DRYING EQUIPMENT—
Carl-Mayer Corp., The, Cleveland, Ohio
Industrial Ovens, Inc., Cleveland, Ohio
Rockwell, W. S. Co., Fairfield, Conn.
Ross, J. O., Engineering Corp., New York, N. Y.

ENGINEERS—Consulting
Copper—Leonard D. Walde, North Plainfield, N. J.
Metal Fatigue—Fatigue of Materials Laboratory, Princeton, N. J.
Wire Mill—Lewis, Kenneth B., Worcester, Mass.

EQUIPMENT—Insulation Testing
Davis Elec. Co., Wallingford, Conn.
Entwistle, James L., Co., Pawtucket, R. I.

EYELETS—Brass or Zinc
Platt Bros. & Co., The, Waterbury, Conn.

FENCING & FENCES—Wire
Interlocking Fence Co., Morton, Ill.

FLUXES—Soldering
American Chemical Paint Co., Ambler, Pa.

FOAM PRODUCING COMPOUNDS—
American Chemical Paint Co., Ambler, Pa.
Parkin Chemical Company, The, Pittsburgh, Pa.

FRICTION PAY-OFF STANDS—
Industrial Ovens, Inc., Cleveland, Ohio.

FURNACES—Annealing
Ajax Electric Co., Inc., Philadelphia, Pa.
Carl-Mayer Corp., The, Cleveland, Ohio.
Electric Furnace Co., Salem, Ohio.
Harper Electric Furnace Corp., Niagara Falls, N. Y.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Trauwood Engr. Co., Cleveland, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

FURNACES—Automatic
Electric Furnace Co., Salem, Ohio.
Surface Combustion Corp., Toledo, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

FURNACES—Brazing
Electric Furnace Co., Salem, Ohio.
Rockwell, W. S. Co., Fairfield, Conn.

FURNACES—Bright Annealing
Electric Furnace Co., Salem, Ohio.
Harper Electric Furnace Corp., Niagara Falls, N. Y.
Michigan Oven Co., Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

FURNACES—Electric
Electric Furnace Co., Salem, Ohio.
Harper Electric Furnace Corp., Niagara Falls, N. Y.
Rockwell, W. S. Co., Fairfield, Conn.
Trauwood Engineering Co., The, Cleveland, Ohio.

FURNACES—Galvanizing Equipment
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Trauwood Engineering Co., The, Cleveland, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

FURNACES—Hard'ing & Temp'ing
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio.
Harper Electric Furnace Corp., Niagara Falls, N. Y.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Trauwood Engineering Co., The, Cleveland, Ohio.

FURNACES—Lead Melting
Electric Furnace Co., Salem, Ohio.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.

FURNACES—Non-Oxidizing
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Surface Combustion Corp., Toledo, Ohio.

FURNACES—Normalizing
Ajax Electric Co., Inc., Philadelphia, Pa.
Carl-Mayer Corp., The, Cleveland, Ohio.
Electric Furnace Co., Salem, Ohio.
Harper Electric Furnace Corp., Niagara Falls, N. Y.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.

FURNACES—Pot (oil, gas, electric)
Ajax Electric Co., Inc., Philadelphia, Pa.
Holden, A. F., Co., The, Detroit, Mich.

FURNACES—Resistance Heating, Strand
Trauwood Engineering Co., The, Cleveland, Ohio.

FURNACES—Salt Bath
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio.
Holden, A. F. Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.

FURNACES—Wire, Strip & Sheet
Carl-Mayer Corp., The, Cleveland, Ohio.
Eisler Engineering Co., Newark, N. J.
Electric Furnace Co., Salem, Ohio.
Harper Electric Furnace Corp., Niagara Falls, N. Y.
Michigan Oven Co., Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Trauwood Engineering Co., The, Cleveland, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

GALVANIZING EQUIPMENT—
Steel Equipment Co., Cleveland, Ohio.
Wean Equipment Corp., Cleveland, Ohio.

GRINDERS—Roll
Norton Co., The, Worcester, Mass.

HAMMERS—Swaging
Sjogren Tool and Machine Co., Auburn, Mass.

HOOKS—Pickling & Liming
Bronze Die Casting Co., Pittsburgh, Pa.
Youngstown Welding & Engineering Co., Youngstown, Ohio.

HOISTS—Electric Travelling
Cleveland Tramrail Div. of The Cleveland Crane & Engineering Co., Wickliffe, Ohio.

IMPREGNATING MATERIALS—
Standard Varnish Works, New York, N. Y.

INHIBITORS—Pickling
American Chemical Paint Co., Ambler, Pa.
Apex Alkali Products Co., Philadelphia, Pa.
Du Pont de Nemours, E. I. & Co., Electrochemical Dept., Wilmington, Del.
Houghton, E. F. & Co., Philadelphia, Pa.
Oakite Products, Inc., New York, N. Y.
Parkin Chemical Company, The, Pittsburgh, Pa.
Pennsylvania Salt Mfg. Co., Philadelphia, Pa.

INSULATING LACQUERING SYSTEMS —Continuous
American Insulating Machine Co., Phila., Pa.
Industrial Ovens, Inc., Cleveland, Ohio.

INSULATING MATERIALS—
Du Pont de Nemours, E. I., Co., Wilmington, Del.
Glass Fibers, Inc., Waterville, Ohio.
Merrimac Paper Co., New York, N. Y.
New England Lacquer Co., E. Providence, R. I.
Owens Corning Fiberglas Corp., Toledo, O.
Standard-Toch Chemicals, Inc., New York, N. Y.
Twitchell, E. W., Philadelphia, Pa.

INSULATING MATERIALS—Paper—For Electric Wire Cable.
Merrimac Paper Co., New York, N. Y.
Twitchell, E. W., Philadelphia, Pa.

LACQUERS—For Electric Wire
New England Lacquer Co., E. Providence, R. I.
Standard-Toch Chemicals, Inc., New York, N. Y.

LAME—LAHN—
Montgomery Co., The, Windsor Locks, Conn.

LATHES—Die Reaming
Carboloy Dept. of General Electric Co., Detroit, Mich.
Roos, Tool & Mfg. Co., Montclair, N. J.

LIME—
Warner Co., Philadelphia and Bellefonte, Pa.

LININGS—Acid and Alkali Proof
Haveg Corp., Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio

LUBRICANTS — For Metal Cutting, Stamping and Drawing
Apex Alkali Products Co., Philadelphia, Pa.
Houghton, E. F. & Co., Philadelphia, Pa.
Magnus Chemical Co., Garwood, N. J.
Miller, R. H., Co., Inc., Homer, N. Y.
Nopco Chemical Co., Harrison, N. J.
Oakite Products, Inc., New York, N. Y.
Standard Industrial Compounds Co., Chicago, Ill.

LUBRICANTS—Wire Drawing
(See Compounds—Wire Drawing)

LUBRICANTS—Wire Rope
Swift & Co., Chicago, Ill.

LUMBER—Wire Mill, Carload shipments for lagging and car blocking
North Anson Reel Co., No. Anson, Me.

MACHINERY—Armoring (Cable, Wire Hose)
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Barbed Wire
Glader Machine Works, Chicago, Ill.
Wafios, Maschinenfabrik, Reutlingen, Germany
Wean Engineering Co., Cleveland, Ohio.

MACHINERY—Bead Wrapping
Terkelsen Machine Co., Boston, Mass.

MACHINERY—Bolts & Rivets
Meyer, Roth & Pastor Maschinenfabrik, Koln-Raderberg, Germany

MACHINERY—Braiding
Fidelity Machine Co., Inc., Philadelphia, Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.

WHERE TO BUY, Continued

New England Butt Co., Providence, R. I.
Wardwell Braiding Machine Co., Central Falls, R. I.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Brazing
Eisler Engineering Co., Newark, N. J.
Syncro Machine Co., Perth Amboy, N. J.

MACHINERY—Bunching
American Insulating Mach'y Co., Phila., Pa.
Cook, Edw., Machy. Co., Wallingford, Conn.
Federal Manufacturing Co., Wallingford, Conn.
Haskell-Dawes Machine Co., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Bundling, Scrap
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Cable, Electric
American Insulating Mach'y Co., Phila., Pa.
Fidelity Machine Co., Inc., Philadelphia, Pa.
Haskell-Dawes Machine Co., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Cable, Rope Closing
New England Butt Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Chain Making
Meyer, Roth & Pastor Maschinenfabrik, Koln-Radderberg, Germany

MACHINERY—Coilers
Boyd & Sons Manufacturing Co., Phila., Pa.
Eisler Engineering Co., Newark, N. J.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Morgan Construction Co., Worcester, Mass.
National Machy. Exch. (used) New York, N. Y.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.
Waterbury-Farrel Fdry. & Mach. Co., Waterbury, Conn.
Watson Machine Co., Paterson, N. J.
Wean Equipment Corp., Cleveland, Ohio
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Cold Heading
(See Cold Headers)

MACHINERY—Copper Wire Drawing and Rolling
Aetna-Standard Engineering Co., Youngstown, Ohio
American Insulating Mach'y Co., Phila., Pa.
Fenn Manufacturing Co., The, Hartford, Conn.
National Mach'y Exch. (Used), New York, N. Y.
Syncro Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Fdry. & Mach. Co., Waterbury, Conn.

MACHINERY—Covering Wire
American Insulating Mach'y Co., Phila., Pa.
Fidelity Machine Co., Inc., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Royle, John & Sons, Paterson, N. J.
Standard Machinery Co., Mystic, Conn.
Syncro Machine Co., Perth Amboy, N. J.
Wardwell Braiding Machine Co., Central Falls, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Cutting
Eisler Engineering Co., Newark, N. J.
Lewis Machine Co., The, Cleveland, Ohio
Mettler Machine Tool, Inc., New Haven, Conn.
National Mach'y Exch. (Used) New York, N. Y.
Porter, H. K., Inc., Everett, Mass.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Die Making
Carboloy Dept. General Electric Co., Detroit, Mich.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Kelly Wire Die Corp., New York, N. Y.
Roos Tool & Mfg. Co., Montclair, N. J.
Wayne Wire Die Co., Hillside, N. J.

MACHINERY—Draw Benches
Aetna-Standard Engineering Co., Youngstown, Ohio
Morgan Construction Co., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Edging
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Enameling
American Insulating Mach'y Co., Phila., Pa.
Industrial Ovens, Inc., Cleveland, Ohio
Michigan Oven Co., Detroit, Mich.
Syncro Machine Co., Perth Amboy, N. J.

MACHINERY—Extruding
National Rubber Machinery Co., Akron, Ohio
Royle, John, & Sons, Paterson, N. J.
Standard Machinery Co., Mystic, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Fence
Glader, Wm., Machine Works, Chicago, Ill.
Interlocking Fence Co., Morton, Ill.
Wafios, Maschinenfabrik, Reutlinger, Germany
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Filament Coil Winding
Eisler Engineering Co., Newark, N. J.

MACHINERY—Flat Wire
Fenn Manufacturing Co., The, Hartford, Conn.
Sleeper & Hartley, Inc., Worcester, Mass.
Stanat Manufacturer Co., Long Island City, N. Y.
Torrington Mfg. Co., Torrington, Conn.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Galvanizing
(See Galvanizing Equipment)

MACHINERY—Galvanizing Wire
Sleeper & Hartley, Inc., Worcester, Mass.
Steel Equipment Co., Cleveland, Ohio
Vaughn Machinery Co., Cuyahoga Falls, O.
Wean Equipment Corp., Cleveland, O.
Wilson, Lee, Engr. Co., Cleveland, Ohio

MACHINERY—Gang Winders
Entwistle, Jas. L. Co., Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Grinding
Norton Co., The, Worcester, Mass.

MACHINERY—Insulating
American Insulating Mach'y Co., Phila., Pa.
Cook, Edw., Machy. Co., Wallingford, Conn.
Ets. Pourtier Frères, Romainville, France
Fidelity Machine Co., Inc., Philadelphia, Pa.
National Rubber Machinery Co., Akron, Ohio
New England Butt Co., Providence, R. I.
Royle, John & Sons, Paterson, N. J.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Knitting
Fidelity Machine Co., Inc., Philadelphia, Pa.

MACHINERY—Lock Washer
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Looms, Wire Weaving
Interlocking Fence Co., Morton, Ill.

MACHINERY—Magnet Wire
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.

MACHINERY—Material Handling
Cleveland Tramrail Div. of The Cleveland Crane & Engineering Co., Wickliffe, O.

MACHINERY—Measuring Wire & Cable
Davis Electric Co., Wallingford, Conn.
Durant Mfg. Co., Milwaukee, Wis.
Entwistle, Jas. L. Co., Pawtucket, R. I.
New England Butt Co., Providence, R. I.
Standard Mill Supply Co., Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Nail and Tack
Glader, Wm., Machine Works, Chicago, Ill.
Meyer, Roth & Pastor Maschinenfabrik, Koln-Radderberg, Germany
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Wafios, Maschinenfabrik, Reutlinger, Germany
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Panning
American Insulating Mach'y Co., Phila., Pa.
Syncro Machine Co., Perth Amboy, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Pickling
Chemsteel Construction Co., Pittsburgh, Pa.
Youngstown Welding & Engineering Co., Youngstown, Ohio

MACHINERY—Pin Making
Meyer, Roth & Pastor Maschinenfabrik, Koln-Radderberg, Germany

MACHINERY—Pointing
Aetna-Standard Engineering Co., Youngstown, Ohio
Morgan Construction Co., Worcester, Mass.
National Mach'y Exch. (Used), New York, N. Y.
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Poultry Wire Fencing
Interlocking Fence Co., Morton, Ill.

MACHINERY—Pre-Heater for Wire (for Extrusion of Plastics)
Industrial Ovens, Inc., Cleveland, Ohio
National Rubber Machinery Co., Akron, Ohio

MACHINERY—Rod Mill
Morgan Construction Co., Worcester, Mass.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Rolling Mill
Morgan Construction Co., Worcester, Mass.
National Machy. Exch. (used) New York, N. Y.
Stanat Manufacturer Co., Long Island City, N. Y.
Syncro Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Engineering Co., Cleveland, Ohio

MACHINERY—Rubber Insulating
National Rubber Machinery Co., Akron, Ohio
Royle, John & Sons, Paterson, N. J.
Standard Machinery Co., Mystic, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Rubber Tubing and Straining
National Rubber Machinery Co., Akron, Ohio
New England Butt Co., Providence, R. I.
Royle, John & Sons, Paterson, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Standard Machinery Co., Mystic, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Screw Wire
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Special
American Insulating Mach'y Co., Phila., Pa.
Davis Electric Co., Wallingford, Conn.
Emory, Robert J., Co., Newark, N. J.
Entwistle, Jas. L. Co., Pawtucket, R. I.
New England Butt Co., Providence, R. I.
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.
Sjogren Tool and Machine Co., Auburn, Mass.
Sleeper & Hartley, Inc., Worcester, Mass.
Stanat Manufacturer Co., Long Island City, N. Y.
Standard Machinery Co., Mystic, Conn.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Spooling
American Insulating Mach'y Co., Phila., Pa.
Boyd & Sons Manufacturing Co., Phila., Pa.
Davis Electric Co., Wallingford, Conn.
Eisler Engineering Co., Newark, N. J.
Emory, Robert J., Co., Newark, N. J.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Fidelity Machine Co., Inc., Philadelphia, Pa.
National Mach'y Exch. (Used), New York, N. Y.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Steel Equipment Co., Cleveland, Ohio
Syncro Machine Co., Perth Amboy, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.
Watson Machine Co., Paterson, N. J.
Wean Equipment Corp., Cleveland, Ohio
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Spring Making
Carlson Company, The, New York, N. Y.
Lundahl Corp., Hartford, Conn.
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Wafios, Maschinenfabrik, Reutlinger, Germany
Wells, Frank L., Co., Kenosha, Wisc.

MACHINERY—Staple
Sleeper & Hartley, Inc., Worcester, Mass.
Wafios, Maschinenfabrik, Reutlinger, Germany

MACHINERY—Straightening & Cutting
Fenn Manufacturing Co., The, Hartford, Conn.
Lewis Machine Co., The, Cleveland, Ohio
Mettler Machine Tool Co., New Haven, Conn.
Meyer, Roth & Pastor Maschinenfabrik, Koln-Radderberg, Germany
National Mach'y Exch. (Used), New York, N. Y.
Nors-Hohm Machine Div. of Nors-Hohm Industries, Inc., Rochester, Michigan
Sleeper & Hartley, Inc., Worcester, Mass.
Wean Equipment Corp., Cleveland, Ohio
Wells, Frank L., Co., Kenosha, Wisc.

MACHINERY—Stranding
Haskell-Dawes Machine Co., Philadelphia, Pa.
Hughesville Machine & Tool Co., Hughesville, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Strip Steel
Aetna-Standard Engineering Co., Youngstown, Ohio
Steel Equipment Co., Cleveland, Ohio
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Swaging
Fenn Manufacturing Co., The, Hartford, Conn.
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Taping
American Insulating Mach'y Co., Phila., Pa.
Ets. Pourtier Frères, Romainville, France
New England Butt Co., Providence, R. I.
Syncro Machine Co., Perth Amboy, N. J.

WHERE TO BUY, Continued

Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Testing, Physical
Lundahl Corporation, Hartford, Conn.
Scott Testers, Inc., Providenec, R. I.

MACHINERY—Testing Equipment—Electrical
Davis Electric Co., Wallingford, Conn.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Tinning Wire
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Steel Equipment Co., Cleveland, Ohio.
Syncro Machine Co., Perth Amboy, N. J.
Wean Equipment Corp., Cleveland, Ohio.

MACHINERY—Tinsel Rolling Mills
American Insulating Mach'y Co., Phila., Pa.
Syncro Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Trolley Wire
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Tube Mill
Marshall-Richards Machine Company, Inc., Trenton, N. J.

MACHINERY—Twinning
(See Mach.—Bunching)

MACHINERY—Twisters, Wire
Cook, Edw., Machy. Co., Wallingford, Conn.
Davis Electric Co., Wallingford, Conn.
Federal Manufacturing Co., Wallingford, Conn.

MACHINERY—Welding Wire
Eisler Engineering Co., Newark, N. J.
Micro Products Co., Chicago, Ill.
Syncro Machine Co., Perth Amboy, N. J.

MACHINERY—Winding
American Insulating Mach'y Co., Phila., Pa.
Eisler Engineering Co., Newark, N. J.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Standard Mill Supply, Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Winding Wire
Federal Manufacturing Co., Wallingford, Conn.
Standard Mill Supply, Pawtucket, R. I.

MACHINERY—Wind-up (Constant Tension, Variable Speed)
Aetna-Standard Engineering Co., Youngstown, Ohio
Davis Electric Co., Wallingford, Conn.
Federal Manufacturing Co., Wallingford, Conn.
Industrial Ovens, Inc., Cleveland, Ohio
Marshall-Richards Machine Co., Inc., Trenton, N.J.
Standard Machine Co., Mystic, Conn.
Watson Machine Co., Paterson, N. J.

MACHINERY—Wire Bending
Eisler Engineering Co., Newark, N. J.
Kilmer, M. D., & Co., Cleveland, Ohio.

MACHINERY—Wire Drawing
Aetna-Standard Engineering Co., Youngstown, Ohio
American Insulating Mach'y Co., Phila., Pa.
Fenn Manufacturing Co., The, Hartford, Conn.
Kurt Orban Co., Inc., New York, N. Y.
Marshall-Richards Machine Co., Inc., Trenton, N.J.
Morgan Construction Co., Worcester, Mass.
National Mach'y Exch. (Used), New York, N. Y.
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Steel Equipment Co., Cleveland, Ohio.
Svenska Telegrambyran (Morgardshammer), Stockholm, Sweden
Syncro Machine Co., Perth Amboy, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Equipment Corp., Cleveland, Ohio.

MACHINERY—Wire Forming
Kilmer, M. D. & Co., Cleveland, Ohio.
Meyer, Roth & Pastor Maschinenfabrik, Koln-Raderberg, Germany
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Wafios, Maschinenfabrik, Reutlinger, Germany

MACHINERY—Wire Rope
New England Butt Co., Providence, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Wood Screw
National Mach'y Exch. (Used), New York, N. Y.

MACHINERY—Wrapping Straight Lengths and Tubing
Angier Corporation, The, Framingham, Mass.
Terkelsen Machine Co., Boston, Mass.

MACHINERY—Wrapping Wire Coils
Angier Corporation, The, Framingham, Mass.
Terkelsen Machine Co., Boston, Mass.

MATERIAL HANDLING EQUIPMENT—
Cleveland Tramrail Div. of The Cleveland Crane & Engineering Co., Wickliffe, O.

MILLS—Tandem, Rolling & Edging
Torrington Mfg. Co., Torrington, Conn.
Wean Equipment Co., Cleveland, Ohio.

NAILS—Wire
American Steel & Wire Co., Cleveland, Chicago, New York.
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Keystone Steel & Wire Co., Peoria, Ill.
Roebling, John A. Sons Co., Trenton, N. J.
Wickwire Brothers, Inc, Cortland, N. Y.

OVENS—Cable Lacquering
American Insulating Mach'y Co., Phila., Pa.
Carl-Mayer Corp., The, Cleveland, Ohio.
Industrial Ovens, Inc., Cleveland, Ohio.
Michigan Oven Co., Detroit, Mich.

OVENS—Dehydrogenizing
Industrial Ovens, Inc., Cleveland, Ohio.

OVENS—Industrial
Industrial Ovens, Inc., Cleveland, Ohio.
Michigan Oven Co., Detroit, Mich.
Ross, J. O., Engr. Corp., New York, N. Y.

OVENS—Rod Bakers
Carl-Mayer Corp., The, Cleveland, Ohio.
Michigan Oven Co., Detroit, Mich.
Ross, J. O., Engr. Corp., New York, N. Y.

OVENS—Welding Rod Coating
Carl-Mayer Corp., The, Cleveland, Ohio.
Industrial Ovens, Inc., Cleveland, Ohio.
Ross, J. O., Engr. Corp., New York, N. Y.

PAINT—Acid Proof
Ceilcote Company, Cleveland, Ohio.
Standard-Toch Chemicals, Inc., New York, N. Y.

PAINT BONDING CHEMICALS—
American Chemical Paint Co., Ambler, Pa.

PAINTS—Heat Resisting
American Chemical Paint Co., Ambler, Pa.
Standard-Toch Chemicals, Inc., New York, N. Y.

PANS—Vulcanizing
Mossberg Pressed Steel Corp., Attleboro, Mass.

PAPER—Creped Wrapping
Angier Corporation, The, Framingham, Mass.
Crepe-Kraft Company, The, Division National Waterproof Papers, Inc., Newark, N. J.
Terkelsen Machine Co., Boston, Mass.

PAPER—For Coil Wrapping and Corrosion Prevention
Angier Corporation, The, Framingham, Mass.
Crepe-Kraft Company, The, Division National Waterproof Papers, Inc., Newark, N. J.
Terkelsen Machine Co., Boston, Mass.

PATENT ATTORNEYS—
Lancaster, Allwine & Rommel, Washington, D. C.

PAY-OUT SYSTEMS—
(See Wind-up and Unwind Systems)

PHOSPHATE COATING CHEMICALS—
American Chemical Paint Co., Ambler, Pa.
Oakite Products, Inc., New York, N. Y.

PICKLING COMPOUNDS—
See (Inhibitors—Pickling)

PICKLING—Hooks, etc. Acid Resisting
Bronze Die Casting Co., Pittsburgh, Pa.
Youngstown Welding & Eng. Co., Youngstown, O.

PICKLING TANK LININGS—
Chemsteel Construction Co., Pittsburgh, Pa.
Haveg Corp., Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio.

PIPES & FITTINGS—Acid Resistant
Haveg Corp., Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio.

PLASTIC TESTERS—
Scott Testers, Inc., Providence, R. I.

PNEUMATIC CYLINDERS—
Entwistle, Jas. L. Co., Pawtucket, R. I.

POTS—Lacquer
Industrial Ovens, Inc., Cleveland, Ohio.

PRESSES—Hydraulic and Mechanical
Standard Machinery Co., Mystic, Conn.

PULLERS AND GRIPS—For Wire
Morgan Construction Co., Worcester, Mass.
Scudder, E. J. Fdry & Mach. Co., Trenton, N. J.
Sjogren Tool and Machine Co., Auburn, Mass.
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
Wean Equipment Corp., Cleveland, Ohio.

REEL AND TENSION STANDS—
Davis Electric Co., Wallingford, Conn.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Industrial Ovens, Inc., Cleveland, Ohio.
Roll-a-Reel, Cincinnati, Ohio.
Sleeper & Hartley, Inc., Worcester, Mass.
Standard Mill Supply Co., Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

REEL CRUTCHES—
Roll-a-Reel, Cincinnati, Ohio
Watson Machine Co., Paterson, N. J.

REELS & SPOOLS—Drawn Aluminum Alloy
Acrometal Products, Inc., Minneapolis, Minn.
Hubbard Spool Co., Garrett, Indiana

REELS & SPOOLS—Annealing and Stranding
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Garrett, Indiana
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio.

REELS & SPOOLS—Collapsible
Entwistle, Jas. L. Co., Pawtucket, R. I.

REELS & SPOOLS—Plastic
Hubbard Spool Co., Garrett, Indiana

REELS & SPOOLS—Steel
Apco Mossberg Co., Attleboro, Mass.
Britelite Distributors, Inc., Brooklyn, N. Y.
Clark, J. L., Mfg. Co., Rockford, Ill.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Ganett, Indiana
Mason Can Company, East Providence, R. I.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio.

REELS AND SPOOLS—Shipping and Shop
Acrometal Products, Inc., Minneapolis, Minn.
American Woodworking Co., Chicago, Ill.
Apco Mossberg Co., Attleboro, Mass.
Bridge Mfg. Co., Inc., The, Hazardville, Conn.
Clark, J. L., Mfg. Co., Rockford, Ill.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Garrett, Indiana
Mason Can Company, East Providence, R. I.
McCaskie, Inc., Wm., Westport, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio.
North Anson Reel Co., No. Anson, Me.
Proctor Reels, Proctorville, Vt.

REELS & SPOOLS—Wooden
Acrometal Products, Inc., Minneapolis, Minn.
American Woodworking Co., Chicago, Ill.
Bridge Mfg. Co., Inc., The, Hazardville, Conn.
Durkee Mfg. Co., Pine River, Minn.
Nelson Co., The, Baltimore, Md.
North Anson Reel Co., No. Anson, Me.
No. Waterford Spool Co., No. Waterford, Me.
Proctor Reels, Proctorville, Vt.

REELS—Metal Bound
Durkee Mfg. Co., Pine River, Minn.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Garrett, Indiana
McCaskie, Inc., Wm., Westport, Mass.
North Anson Reel Co., No. Anson, Me.

REELS—Pay-off
Nors-Holm Industries, Rochester, Mich.

REELS—Takeoff
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Bridge Mfg. Co., The, Hazardville, Conn.
Clark, J. L., Mfg. Co., Rockford, Ill.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Garrett, Indiana
McCaskie, Inc., Wm., Westport, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio.
North Anson Reel Co., No. Anson, Me.
Proctor Reels, Proctorville, Vt.

REELS—Vulcanizing & Impregnating
Apco Mossberg Co., Attleboro, Mass.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Garrett, Indiana
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp., Niles, Ohio

REELS—Wire Drawing
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Ganett, Indiana
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp., Niles, Ohio.

WHERE TO BUY, Continued

REELS—Wire Mill
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Bridge Mfg. Co., The, Hazardville, Conn.
Britelite Distributors, Inc., Brooklyn, N. Y.
Durkee Mfg. Co., Pine River, Minn.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Company, Garrett, Indiana
Mason Can Company, East Providence, R. I.
McCaskie, Inc., Wm., Westport, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio.
North Anson Reel Co., No. Anson, Me.
Proctor Reels, Proctorville, Vt.

REFRACTORIES—High Temperature
Norton Company, Worcester, Mass.

RESISTANCE HEATING—Annealing Patenting, Etc.
Trauwood Engr. Co., Cleveland, Ohio.

ROD BAKERS—
(See Ovens—Rod Bakers)

RODS—Stainless Steel
American Steel & Wire Co., Cleveland, Ohio.
U. S. Steel Co., N. Y., N. Y.

RODS—Wire—Non-Ferrous
American Brass Co., The, Waterbury, Conn.
Platt Bros. & Co., The, Waterbury, Conn.

RODS—Wire, Steel
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Indiana.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Company, Pittsburgh, Pa.
Roebling's, John A., Sons Co., Trenton, N. J.
Montan Export, Inc., New York, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

ROPE—Wire
American Steel & Wire Company, Cleveland, O.
Bethlehem Steel Co., Bethlehem, Pa.
Roebling's John A., Sons Co., Trenton, N. J

RUBBER AND RUBBER COMPRESSION TESTERS—
Scott Testers, Inc., Providence, R. I.

RUST PROOF COMPOUNDS—
(See Compounds—Rust Preventing)

RUST REMOVING COMPOUNDS—
(See Compounds—Rust Preventing)

SALTS—Heat Treating, Descaling, etc.
Holden, A. F., Co., The, Detroit, Mich.
Houghton, E. F. & Co., Philadelphia, Pa.

SATURATION SYSTEMS—
Industrial Ovens, Inc., Cleveland, Ohio.
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

SOAPS—Industrial and Wire Drawing
(See Compounds—Wire Drawing)

SODIUM—for Descaling
Du Pont de Nemours, E. I. & Co., Electrochemical Dept., Wilmington, Del.
Holden, A. F., Co., The, Detroit, Mich.

SOLVENT RESIN SYSTEMS—Experimental
Industrial Ovens, Inc., Cleveland, Ohio.

SPOOLS—Stamped Metal for Retail Wire Sales
Clark, J. L. Mfg. Co., Rockford, Ill.
Mason Can Co., East Providence, R. I.

STAMPINGS—Steel
Hubbard Spool Company, Ganett, Indiana
Mossberg Pressed Steel Corp., Attleboro, Mass.

STRIP—Steel
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Roebling's John A., Sons Co., Trenton, N. J.
Youngstown Sheet & Tube Co., Youngstown, O.

SWIFTS—Take-off
Apco Mossberg Co., Attleboro, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Watson Machine Co., Paterson, N. J.

TANKS—Compound
Haveg Corp., Newark, Del.
Watson Machine Co., Paterson, N. J.

TANKS—Pickling
Ceilcote Company, Cleveland, Ohio.
Chemsteel Construction Co., Pittsburgh, Pa.
Haveg Corp., Newark, Del.

TANKS—Steel
Chemsteel Construction Co., Pittsburgh, Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.

TIES—WIRE—
(See Wire Ties)

TINNING PROCESS—
Du Pont de Nemours, E. I. & Co., Electrochemical Dept., Wilmington, Del.
Metal & Thermit Corp., New York, N. Y.

TINSEL—Cords, Decorative
(See: Tinsel—Electric Conductor)

TINSEL—Electric Conductor
Montgomery Co., The, Windsor Locks, Conn.

TINSEL—Electric Resistance
(See: Tinsel—Electric Conductor)

TINSEL—Lame, Silver and False Gold
(See: Tinsel—Electric Conductor)

TINSEL—Thread, Silver and False Gold
(See: Tinsel—Electric Conductor)

TINSEL—Thread, Decorative
(See: Tinsel—Electric Conductor)

TINSEL—Wire
(See: Tinsel—Electric Conductor)

TOOLS—Spring Forming
Lundahl Corporation, Hartford, Conn.

TOOLS—Wire Cutting
Porter, H. K., Inc., Everett, Mass.

TRAMRAIL SYSTEMS—
Cleveland Tramrail Div. of the Cleveland Crane & Engineering Co., Wickliffe, O.

TRAVERSES & DRUMS—For Reels
(See Drums & Traverses)

TRAVERSE MECHANISMS—
Apco Mossberg Co., Attleboro, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
New England Butt Co., Providence, R. I.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

TUBE BENDERS AND FORMERS—
H. D. Kilmer Co., Cleveland, Ohio.

TURKS HEADS—
Fenn Manufacturing Co., The, Hartford, Conn.

VALVES & FITTINGS—Acid Resistant
Haveg Corp., Newark, Del.

VARNISHES—for Electric Wire
N. E. Lacquer Co., E. Providence, R. I.
Standard-Toch Chemicals, Inc., New York, N. Y.

VULCANIZERS—
Watson Machine Co., Paterson, N. J.

VULCANIZING PANS—
American Insulating Mach'y Co., Phila., Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.

WELDERS—Spot and Butt
Eisler Engineering Co., Newark, N. J.
Micro Products Co., Chicago, Ill.

WIND-UP AND UNWIND SYSTEMS—Continuous
American Insulating Mach'y Co., Phila., Pa.
Davis Electric Co., Wallingford, Conn.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Federal Manufacturing Co., Wallingford, Conn.
Industrial Ovens, Inc., Cleveland, Ohio
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

WIRE—Alloy
Montan Export, Inc., New York, N. Y.

WIRE—Aluminum
Elmet Division, North American Philips Company, Inc., Lewistown, Maine
Malin & Co., Cleveland, Ohio

WIRE—Barbed
Interlocking Fence Co., Morton, Ill.

WIRE—Cast
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Cold Heading
American Steel & Wire Co., Cleveland, Ohio
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
Roebling's John A., Sons Co., Trenton, N. J.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Electric
American Brass Co., The, Waterbury, Conn.
Britelite Distributors, Inc., Brooklyn, N. Y.
Chase Brass & Copper Co., Waterbury, Conn.
Hudson Wire Co., Ossining, N. Y.
Malin & Co., Cleveland, Ohio

WIRE—Flat, Fine
Elmet Division, North American Philips Company, Inc., Lewistown, Maine
Montgomery Co., The, Windsor Locks, Conn.

WIRE—Manufacturers
American Steel & Wire Co., Cleveland, Ohio
Bethlehem Steel Co., Bethlehem, Pa.
Chase Brass & Copper Co., Waterbury, Conn
Continental Steel Corp., Kokomo, Ind.
Johnson Steel & Wire Co., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Montan Export, Inc., New York, N. Y.
Newbury Company, The, Boston, Mass.
Pittsburgh Steel Co., Pittsburgh, Pa.
Roebling's, John A., Sons Co., Trenton, N. J.
U. S. Steel Co., N. Y., N. Y.
Wickwire Brothers, Inc., Cortland, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O

WIRE—Music
American Brass Co., The, Waterbury, Conn.
American Steel & Wire Co., Cleveland, Ohio
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Malin & Co., Cleveland, Ohio
Montan Export, Inc., New York, N. Y.
Newbury Company, The, Boston, Mass.
Specialty Wire Co., Inc., Worcester, Mass.

WIRE—Nickel Silver and Phosphor Bronze
American Brass Co., The, Waterbury, Conn.
Hudson Wire Co., Ossining, N. Y.
Malin & Co., Cleveland, Ohio.
Chase Brass & Copper Co., Waterbury, Conn.

WIRE—Non-Ferrous to Specifications for Special Purposes
American Brass Co., The, Waterbury, Conn.
American Steel & Wire Co., Cleveland, Ohio
Chase Brass & Copper Co., Waterbury, Conn.
Hudson Wire Co., Ossining, N. Y.
North American Philips Co., Inc., Allied Products Division, New York, N. Y.

WIRE—Oil Tempered
Pittsburgh Steel Co., Pittsburgh, Pa.

WIRE—Spring
American Brass Co., The, Waterbury, Conn.
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Newbury Company, The, Boston, Mass.
Pittsburgh Steel Co., Pittsburgh, Pa.
Specialty Wire Co., Inc., Worcester, Mass.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Stainless Steel
American Steel & Wire Co., Cleveland, Ohio
Firth Sterling Steel & Carbide Co., McKeesport, Pa.
Specialty Wire Co., Inc., Worcester, Mass.

WIRE—Steel—Also Coppered and Galvanized Steel
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
U. S. Steel Export Co., New York, N. Y.
Wickwire Brothers, Inc., Cortland, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Straightening and Cutting
Erie Iron & Supply Co., Erie, Pa.
Pittsburgh Cut Wire Co., Pittsburgh, Pa.
Wickwire Brothers, Inc., Cortland, N. Y.

WIRE—Tungsten
North American Philips Co., Inc., Allied Products Division, New York, N. Y.

WIRE—Zinc
Platt Bros. & Co., The, Waterbury, Conn.

WIRE CLOTH—Industrial
Roebling's, John A., Sons Co., Trenton, N. J.
Wickwire Brothers, Inc., Cortland, N. Y.

WIRE—Weaving (Non-Ferrous)
American Brass Co., The, Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.

WRAPPING PAPER—Creped
Crepe-Kraft Company, The, Division National Waterproof Papers, Inc., Newark, N. J.
Angier Corporation, The, Framingham, Mass.

YARNS & TAPES—
Du Pont de Nemours, E. I. Co., Wilmington, Del.
Glass Fibers, Inc., Waterville, Ohio
Owens Corning Fiberglas Corp., Toledo, Ohio
Twitchell, E. W., Philadelphia, Pa.

YARN TESTERS—
Scott Testers, Inc., Providence, R. I.

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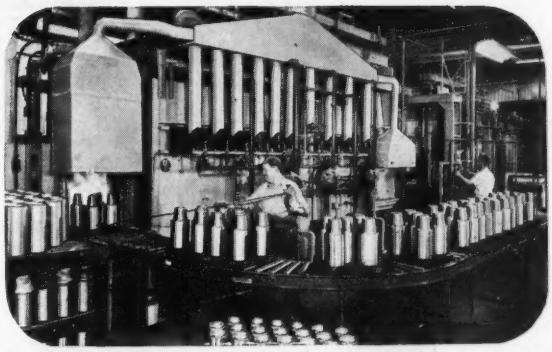

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- NITRIDING
- SINTERING
- SOLUTION TREATING
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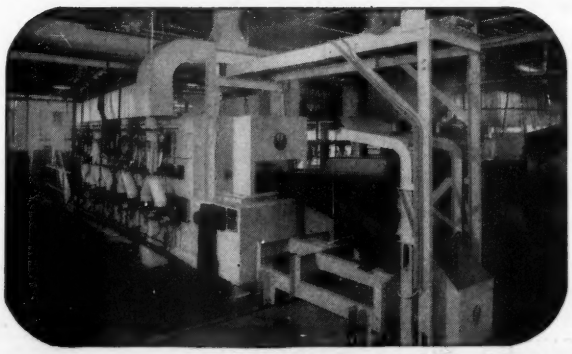

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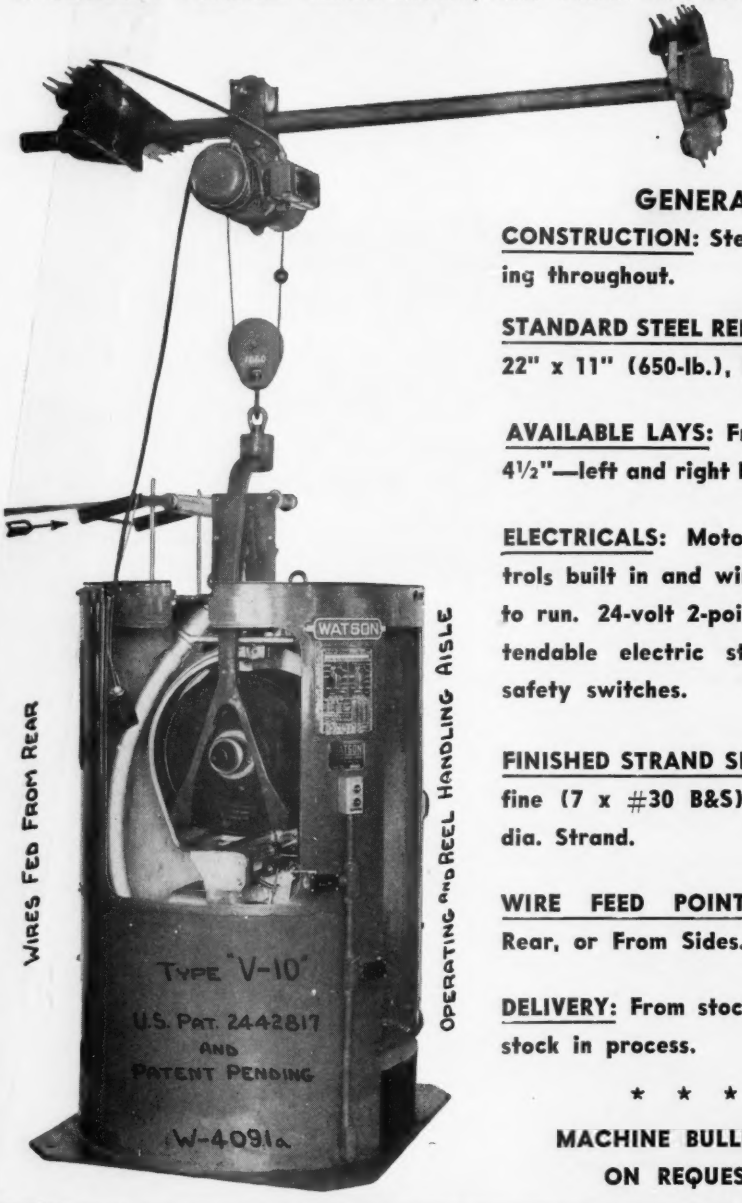

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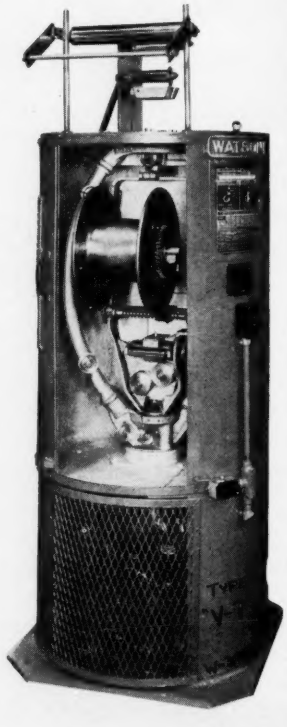

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